

STRENGTHENING WILLPOWER: EVALUATING THE EFFECTIVENESS OF
AN “ADHERENCE EFFICACY” INTERVENTION

By

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For my family and close friends, who have supported me throughout my life, and to whom
I owe most of my success

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Abstract of Dissertation Presented to the Graduate School
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Adherence to certain positive activities (e.g., exercise routines) contributes greatly to one’s quality and length of life. “Adherence efficacy,” a term coined by the author, alludes to the confidence in one’s ability to adhere to desired activities. This confidence is often a crucial link between wishing to adhere to activities and actually experiencing such adherence.

An intervention developed to enhance adherence efficacy based on the results of a preliminary study revealing five “cross-activity adherence-influencing factors” was designed by the author. The current study investigated the effectiveness of this intervention and whether increasing adherence efficacy positively affects actual self-reported persistence.

Twenty-seven participants were recruited from a local fitness center. Thirteen participants took part in the intervention. The remaining participants comprised the

control group ($n = 14$). During the three weekly intervention meetings, a variety of methods of increasing adherence across many activities were discussed. “Weekly activities” based on the content of the intervention discussions and created by intervention participants were “assigned” to these participants each week. The General Adherence Efficacy Scale (GAES) was used to assess adherence efficacy levels in the study’s participants. The construction of this scale is discussed.

It was hypothesized that (1) intervention group participants would report significantly greater increases in GAES scores after the adherence efficacy intervention than control group participants over the same interval of time and (2) higher intervention participant scores on certain of the “tips for getting the most of the intervention” (e.g., level of review of the intervention material) would be associated with both higher levels of GAES score increases at time 2 and higher increases in levels of participant-reported actual adherence to their target activities at time 2. Hypothesis 1 was not confirmed. Possible explanations for this result are discussed. Hypothesis 2 was confirmed. Intervention participants’ self-reported frequency of performance of weekly activities was associated with increased GAES scores, and review of the intervention material in between intervention sessions was associated with increased intervention group persistence with their target activities. Implications, weaknesses of the current study, and suggestions for future research on adherence efficacy are discussed.

CHAPTER 1 INTRODUCTION

Adherence, or compliance, has been defined as the maintenance of an activity over a period of time (Dishman & Buckworth, 1997). Although commonly described as a static concept in past literature, adherence is beginning to be thought about in terms of a more fluid process, influenced by biological, psychological, and environmental variables (e.g., Bandura, 1995; Gavin, 1988; Maddux, 1993; Pizzari, McBurney, Taylor, & Feller, 2002; Ryan & Deci, 2000). The concept of adherence, and what can be done to improve it in individuals, is of immense concern to health professionals (both psychologically and physically oriented health professionals) and many of their clients/patients because the ability to adhere to certain activities (e.g., exercise, healthy eating patterns, positive communication habits) can contribute significantly to individuals' quality and length of life (e.g., Kabat-Zinn, 1990; Litt, Kleppinger, & Judge, 2002; Maddux, 1993; Scler, 1991; Thayer, Newman, & McClain, 1994; Wankel, 1993).

The numerous psychological effects of adherence to certain health-oriented routines include reduced state anxiety and neuroticism, increased positive body image (Davis, Claridge, & Brewer, 1996), more positive mood states (Thayer, Newman, & McClain, 1994), and less subjective pain reports by chronic pain patients (Kabat-Zinn, 1990). However, there is much evidence that adherence to such health-promoting and/or health-restoring activities is often low. For example, some studies suggest that only about 20 percent of the people in North America adhere to enough physical activity to maintain cardiovascular health (Wankel, 1993). Ironically, it has been reported that

those most in need of being adherent to health-related routines are often the least likely to be adherent to such regimens (Gavin, 1988). For example, Scler (1991) reports that chronically ill patients' adherence to their medical regimens is often below 50 percent. There are many possible reasons for individuals to be nonadherent to certain activities [e.g., the perception of not having the time to perform an activity (Pizzari, McBurney, Taylor, & Feller, 2002), or not enjoying an activity (Higley & Tucker, 2000)], even to those activities that individuals seem extremely motivated to perform. These reasons for nonadherence can undermine the ability to consistently participate in certain activities that one would like to engage in on a regular basis and/or activities that may significantly improve one's quality and/or length of life (e.g., Gavin, 1988; Molassiotis, Nahas-Lopez, Chung, Lam, Li, & Lau, 2002; Pizzari, McBurney, Taylor, & Feller, 2002; Wankel, 1993).

There are many models of self-regulation that have been helpful in describing why some people fail to adhere to certain activities while others are more successful. These include self-efficacy theory (Bandura, 1995), the theory of reasoned action (Fishbein & Ajzen, 1975), and Maddux's integrated model of adherence (1993). These models and other models of adherence have been helpful in describing, predicting, and/or enhancing adherence to such activities as exercise (e.g., Godin, 1993), studying (e.g., Ryan & Deci, 2000), and many other activities (e.g., Bandura, 1995). They have also helped to underscore the importance of such factors as effective social support, motivation, and self-efficacy for certain activities on individuals' adherence levels to these activities.

Although these models are often helpful in promoting, predicting, and describing adherence to individual activities, studies applying these models to investigate adherence often do not take into account the fact that most people have differing levels of adherence to a great variety of activities (even if they are relatively nonadherent to the particular activity under study in a given investigation). Thus, it seems appropriate to investigate the following: (1) what, if any, relatively modifiable factors differentiate among adhered to and not adhered to activities across many desired activities and across many individuals, and (2) can such factors be utilized to assist individuals seeking to achieve increased adherence to a wide variety of activities? Higley and Tucker (2000) performed a study that yielded five such factors (i.e., “modifiable cross-activity adherence-influencing factors”).

The five modifiable cross activity adherence-influencing factors uncovered by Higley and Tucker (2000) were (1) motivation, (2) perception of time availability, (3) accessibility, (4) enjoyment, and (5) social support. It is well-documented that motivation is an important factor in regular adherence to individual activities (e.g., Bandura, 1982; Pizzari, McBurney, Taylor, & Feller, 2002; Ryan and Deci, 2000). In fact, individuals do not seem to perform any activities without some kind of motivation for their performance. Individuals who perceive themselves to have enough time in their lives to perform many desired activities seem to also perceive themselves to have more control over their ability to participate in desired activities more consistently than those who more often perceive themselves to be frequently in a “time crunch” (Covey, 1989; Pizzari, McBurney, Taylor, & Feller, 2002). People with more time perception may also be less likely to view time as a factor detracting from their abilities to adhere to many

desired activities. Another issue often affecting consistent adherence to many individual activities is the ease with which one may gain access to all the equipment and/or the resources involved in the performance of the activity (Gavin, 1988). Accessibility is crucial to adherence to a wide variety of individual activities, because the inability to access materials critical to performance of an activity makes performance of that activity less likely while also seeming to affect one's motivation to perform the activity (e.g., the inability to pay for membership to a fitness center may decrease motivation for weightlifting in general).

The final two modifiable cross-activity adherence-influencing factors found by Higley and Tucker (2000), enjoyment and social support, have been found to be especially helpful in long-term adherence to such activities as running and other forms of exercise (Gavin, 1988; Perrin, 1979; Pizzari, McBurney, Taylor, & Feller, 2002). Common sense, along with much research (e.g., Boothby, Tungatt, & Townsend, 1981; Gavin, 1988; Perrin, 1979; Wankel, 1993) informs us that enjoyment of activities makes adherence to them much easier and often more permanent. It is also apparent that lack of enjoyment of activities can make long-term adherence difficult. Finally, Bandura (1982) states that when environmental demands are overwhelming to an individual, one is more likely to need the support of others in order to continue adhering to an activity. Indeed, investigations into the effects of social support on long-term adherence have shown strong links between reception of desired types of support for an activity and adherence to that activity (e.g., Bandura, 1982; Corrigan, 2002; Gavin, 1988; Pizzari, McBurney, Taylor, & Feller, 2002). Furthermore, many different self-regulation models (e.g., the theory of reasoned action, Maddux's integrated model) include social support as a crucial

factor contributing to or detracting from adherence (Gavin, 1988; Maddux, 1993). Thus, there is much literature to support Higley and Tucker's (2000) findings regarding the importance of these five factors in adherence across activities. These five modifiable cross-activity adherence-influencing factors will be discussed in more detail in the section entitled, "The Modifiable Cross Activity Adherence-Influencing Factors" in Chapter 2.

Higley and Tucker (2000) stated that the next logical step in this line of research seems to be the creation of an intervention which focuses on training individuals to manage these five factors more effectively in order to empower individuals to feel more confident and competent in their abilities to adhere to many different types of desired activities in their lives, regardless of the nature of these activities (i.e., to help individuals strengthen their "willpower/adherence efficacy"). Over the course of two years, the author created one such intervention. This intervention was influenced by research and practice in such areas as motivation (e.g., Maddux, 1993; Ryan & Deci, 2000), time and self management (e.g., Covey, 1989; Tice & Quick, 1997), enjoyment (e.g., Csikszentmihalyi, 1990; Wankel, 1993), and social support (e.g., Belgrave & Lewis, 1994; Russel & Cutrona, 1987). Research in the area of creating culturally sensitive interventions with people of many different worldviews was also critical to the development of the intervention (e.g., Arredondo, Toporek, Brown, Jones, Locke, Sanchez, & Stadler, 1996). Finally, due to the crucial role of "homework assignments" in the intervention, the work of Hill and Nutt-Williams (2000) regarding procedures helpful in ensuring assigned homework will actually be performed by intervention participants was also central to the creation of the intervention. This intervention will be

discussed in more detail in the section entitled, “The Development of an Adherence Efficacy Intervention” in Chapter 2.

Thus, the present study investigated the effectiveness of an intervention designed to cultivate higher levels of “adherence efficacy” in its participants. Adherence efficacy is a term coined by the author (meant to replace the more ambiguous term “willpower”) alluding to the confidence in one’s ability to perform various desired activities across desired spans of time. Higher levels of adherence efficacy may assist those who are concerned with their physical, mental, and/or emotional health to feel more in control of factors that influence these three crucial aspects of their health (e.g., health-related activities, leisure activities, financial goals). Increased adherence efficacy may also help those who are beginning to deal with required lifestyle changes (e.g., the heart attack victim who must stop eating fatty foods, the diabetic who must adhere to a new nutrition regimen) to feel more empowered as they begin a new way of life. Additionally, individuals who think of themselves as highly “adherence efficacious” people may be more resistant to obstacles to their adherence (e.g., newly acquired time constraints due to changes in lifestyle and/or employment, boredom resulting from repeated performance of an activity).

Improving individuals’ efficacy regarding their ability to adhere to nearly any activity that they desire to perform consistently could contribute to the empowerment of those who currently believe that they do not have the “willpower” to adhere to certain desired activities. The present research was begun with the view that its results may lend support to Bandura’s (1982) notion that it is not some inherent and ambiguous willpower that determines whether some people will adhere to desired behavioral routines and/or

thought patterns and dooms others to live nonadherent lives. Rather, it is individuals' learned confidences in their abilities to execute more control over their own thoughts and actions on a more consistent basis that increases their probabilities of adhering to many of the desired activities in their lives.

The adherence efficacy intervention under study was designed to teach methods of utilizing the five modifiable cross-activity adherence-influencing factors found by Higley and Tucker (2000) to be associated with adherence to a variety of participant-selected activities. This adherence efficacy intervention's central focus is increasing awareness of the five modifiable cross-activity adherence-influencing factors. Furthermore, this intervention was designed to instruct individuals as to how they can manipulate these modifiable cross-activity adherence-influencing factors so that individuals may more effectively cultivate higher levels of adherence efficacy. In other words, this adherence efficacy intervention was designed to assist individuals in strengthening their own beliefs regarding their abilities to more effectively control their own adherence to various desired activities (i.e., to feel less dependent on some uncontrollable and/or ambiguous "willpower" in order to be more adherent to more desired activities) and have greater expectations of successful future adherence to activities to which they would like to adhere on a more regular basis (i.e., to experience greater adherence efficacy). Finally, this intervention is designed to promote the actual implementation of its adherence-enhancing strategies to help manipulate the five modifiable cross-activity adherence-influencing factors discussed above in order to promote increased adherence to desired activities, as opposed to simply promoting cognitive knowledge of the strategies.

Thus, the goals of this investigation of the adherence efficacy intervention were twofold: (1) to illustrate the existence of adherence efficacy while investigating its possible association with adherence to desired activities and (2) to investigate whether the intervention under study truly does increase adherence efficacy in its participants and participants' actual self-reported adherence to some of their desired activities.

The intervention is meant to assist in improving its participants' levels of adherence efficacy. If adherence efficacy affects participants in the hypothesized manner, higher levels of adherence efficacy will be associated with increased levels of general adherence to participants' desired activities. Increased levels of adherence efficacy were hypothesized to be associated with increases in individuals' adherence to activities that they desire to perform more regularly, regardless of the nature of the activities. It was also hypothesized that intervention participants scoring higher on certain "tips for getting the most out of the intervention" (i.e., suggestions regarding how to optimize the effects of the intervention) will experience both higher increases in adherence efficacy and more increases in actual self-reported adherence to certain targeted activities than will those participants scoring lower on these tips. If this is so, empirical support for some or all of these tips being stressed in future interventions will be provided. These tips for getting the most out of the intervention will be discussed in more detail later in Chapter 2 under the section entitled, "Development of an Adherence Efficacy Intervention."

CHAPTER 2

REVIEW OF THE LITERATURE

There are many models of how people adhere to a variety of activities in their lives, such as the biomedical and behavioral models of adherence (Brannon & Feist, 1997). There is an abundance of cognitive-related adherence models in particular which have been researched extensively, including attribution theory and goal theory (Bandura, 1995). This review of the literature will begin with brief overviews of seven such cognitive adherence models: self-efficacy theory (Bandura, 1995), the theory of reasoned action (Fishbein & Ajzen, 1975), the health belief model (Brannon & Feist, 1997), protection motivation theory, habit theory (Ronis, Yates, & Kirscht, 1989), an integrated model of adherence (Maddux, 1993), and self-determination theory (Ryan & Deci, 2000). Then, a review and critique of adherence studies in general will be covered, followed by a discussion of a new way to both conceptualize and study willpower put forth by the author (i.e., “adherence efficacy”). This review of the literature will then conclude with a discussion of an intervention created by the author to increase adherence efficacy in participants and some implications of increasing levels of adherence efficacy in individuals.

Self-Efficacy Theory

It is often self-referent thought that bridges the gap between knowing what to do and actually doing it (Sheeshka, Woolcott, & Mackinnon, 1993). According to Bandura (1977, 1982, 1995), given physical ability and incentive, behavior occurs as a function of

an individual's self-efficacy, or one's opinions regarding one's ability to perform a particular behavior well enough to bring about desired results.

Self-efficacy has been defined as an individual's feeling of competence and effectiveness (Myers, 1994). Although sometimes conceptualized as similar to Rotter's locus of control, self-efficacy is more situation-specific than the more global trait of locus of control (Manning & Wright, 1983). Thus, self-efficacy levels tend to fluctuate more across activities and time than does locus of control. Higher levels of self-efficacy have been linked with such concepts as ability to control pain naturally (Manning & Wright, 1983), and recovery from myocardial infarctions (Desharnis, Boullon, & Godin, 1986).

Self-efficacy is comprised of two constructs: outcome expectancies and efficacy expectancies (Bandura, 1995). Outcome expectancies are individuals' judgments about whether particular behaviors will lead to outcomes that are desirable to the individual. Efficacy expectations are individuals' estimations of their ability to perform certain activities well enough to attain the perceived outcomes of the activities (Bandura, 1977). These two constructs comprising self-efficacy can vary in strength, level, and magnitude, and are based upon four sources of information: (1) past performance, (2) vicarious experiences, (3) verbal persuasion, and (4) attribution of physiological state.

Level, strength, and generality of self-efficacy can be manipulated through the use of the four sources of self-efficacy information mentioned above (Bandura, 1995). It is through successfully taking on reasonable challenges that one will most effectively enhance one's self-efficacy (Myers, 1994). Thus, actual successful performance of an activity is the strongest reinforcer of self-efficacy for that activity (Bandura, 1977, 1995). The three other ways in which to manipulate an individual's level of self-efficacy are (1)

vicariously learning through observation of similar others' performance of a behavior, (2) persuasion through verbal encouragement by others, and (3) the more positive re-interpretation of visceral reactions experienced while being engaged in an activity (either physically or psychologically). Level of self-efficacy has an effect on such factors as the types of activities people select to participate in, their emotional responses to life occurrences, and cognitions regarding the activity (Bandura, 1995).

Self-efficacy's contribution to adherence behaviors is well documented (e.g., Bandura, 1995, 1982; Desharnis, Boullon, & Godin, 1986). Self-efficacy has been repeatedly linked with adherence to a variety of activities. In fact, higher levels of self-efficacy tend to promote adherence to activities even in the face of obstacles to adherence (Bandura, 1977, 1982, 1995). Higher levels of self-efficacy have contributed to adherence to such activities as exercise routines, smoking cessation plans, weight-control programs, and preventative health regimens (Desharnis, Boullon, & Godin, 1986). Measures of individuals' levels of self-efficacy (having to do with perceived performance difficulty) and strength of self-efficacy (having to do with how resistant the belief is to contrary evidence) have been effective in predicting adherence to a variety of programs, even before the programs are implemented.

Theory of Reasoned Action

The theory of reasoned action states that people make decisions about their behaviors based on perceived consequences of participating in an activity and how important these consequences are (Fishbein & Ajzen, 1975). According to this theory, it is intention that drives performance of activities (Brannon & Feist, 1997). People's intentions are driven by two major factors: attitudes toward activities and subjective

norms. Attitudes toward activities are driven by individuals' beliefs that activities will result in positive or negative outcomes (Brannon & Feist, 1997). Attitudes are comprised of assessments of expected consequences and the value of these consequences.

Subjective norms are driven by individuals' perception of significant others' opinions of activities, along with individuals' desires to comply with these perceived norms. Thus, an individual's perception of how others will react to the performance of a behavior influences that individual's intention to engage in that behavior (Maddux, 1993).

Studies have supported the utility of the theory of reasoned action in predicting and describing adherence to exercise behavior (e.g., Godin, 1993). However, there is often confusion over how to measure some of the constructs involved in this theory (Maddux, 1993). For example, the assessment of perceived control has been measured as expectation of attaining a goal in some studies, while perceived control has been measured as executing a plan toward a goal in other studies.

Health Belief Model

The health belief model was originally developed as an attempt to explain the poor compliance of the public to such health behaviors as immunizations and tuberculosis screenings in the 1950s (Maddux, 1993). This model's tenets have more currently been applied to explaining adherence to many different activities. Four beliefs comprise the health belief model (Brannon & Feist, 1997). According to this theory, these beliefs determine adherence and they have a cumulative effect on performance or nonperformance of activities. Furthermore, each of these four beliefs influences the other three beliefs. The four beliefs included in the health belief model are (1) individuals' beliefs in their susceptibility to negative results of nonadherence to activities, (2) the

perceived harshness of these negative results of nonadherence, (3) the results of a cost-benefit ratio in relation to performance of activities, and (4) individuals' perceptions of the barriers to regular performance of activities (Brannon & Feist, 1997). The likelihood of taking action is also increased by an external cue, or a "cue to action" for the behaviors (Maddux, 1993). Additionally, there have been attempts to add a social support factor to the health belief model.

The usefulness of the health belief model has been supported by investigations into several preventative health behaviors and adherence to medical regimen behaviors (Janz & Becker, 1984), although evidence for its utility in predicting exercise behavior is not abounding (Maddux, 1993). The most support for the utility of the health belief model has been found via the influence of perceived barriers to regular performance of an activity on adherence behaviors (Maddux, 1993). However, according to Maddux (1993) most of the studies on the utility of the health belief model in predicting or describing adherence to health related activities have not been experimental, but rather retrospective in nature.

Protection Motivation Theory

Protection motivation theory was originally construed to explain how fear influences attitude change, but is now often used to explain adherence to health-related behaviors (Maddux, 1993). This theory centers on how to protect oneself from and/or cope with harmful and stressful situations and is driven by two main cognitive processes: threat appeal and coping appraisal (Maddux, 1993). Threat appeal has to do with the evaluation of negative consequences of engaging or not engaging in an activity, and is influenced by one's perceived vulnerability to these consequences and perceived severity

of these consequences (Maddux, 1993). Perceived vulnerability is an individual's assessment of how at-risk he or she is for the negative results of performing a behavior regularly. Perceived severity has to do with an evaluation of how intense these negative consequences are. As perceived vulnerability and perceived severity increase, the probability of an unhealthy behavior decreases. However, as intrinsic factors such as enjoyment and extrinsic factors like approval from others increase, so does the probability of performing an unhealthy behavior.

Coping appraisal is the evaluation of how effective an activity will be at preventing unwanted consequences (Maddux, 1993). Coping appraisal is driven by response efficacy and self-efficacy. Response efficacy is the perceived effectiveness of a health behavior in preventing or helping one to cope with an undesired consequence. As discussed previously, self-efficacy deals with one's confidence in one's ability to perform the health behavior well enough to prevent or cope with an undesired consequence (Bandura, 1995). As response efficacy and self-efficacy increase, so does the probability that a health related behavior will be performed. However, as response cost perception increases, the probability of performance of such activities decreases (Maddux, 1993).

The literature is mixed in terms of empirical validation of this theory, although it is mostly favorable. Many studies have supported the utility of perceived vulnerability, response efficacy, and (as mentioned above) self-efficacy in predicting adherence to certain health related behaviors (e.g., Maddux & Rogers, 1983; Wurtele, 1986). However, perceived severity has not been proven to be as important in predicting or describing adherence to such activities (Maddux, 1993).

Habit Theory

A habit is an activity that has been performed so frequently that it is often performed unconsciously and without much effort (Maddux, 1993). Habit theory attempts to explain adherence to certain activities in terms of the ease with which they can be incorporated as habits. This theory posits that some behaviors are performed because they are repeated so often that they are controlled by situational cues, while other behaviors are so infrequently executed that their performance is influenced more by conscious cognitive processes and decisions.

If a behavior is performed often enough, it has the potential to become a habit (Maddux, 1993). However, the following factors are also necessary to increase the probability that behavioral performance will become predominately automatic: (1) the behavior is performed in the same or similar environment, (2) the behavior is performed in the same or similar situations, and (3) the behavior is performed in the presence of vivid, consistent, and numerous cues (Maddux, 1993). It has been suggested that the previous theories account for adherence to behaviors that require conscious decisions and control, while habit theory explains adherence when behavior had become more integrated into one's lifestyle and more under the control of environmental cues to action (Ronis, Yates, & Kirscht, 1989).

An Integrated Model

Maddux (1993) posits a single model of adherence to activities, with the theory of planned behavior as its root theory (see Figure 1). This integrated model synthesizes concepts from all five of the theories discussed above. Maddux (1993) first outlines some of the common elements of the five models, including outcome expectancies,

outcome value, intention, and situational cues. He then describes how a behavior goes from simply being thought about to actually becoming a regular part of one's life.

According to his integrated model, a cue to decision causes a behavior to go through one of three routes: (1) the habit route, (2) the self-efficacy route, or (3) the intention route. All of these routes, if successfully negotiated, can bring about regular practice of a behavior (Maddux, 1993).

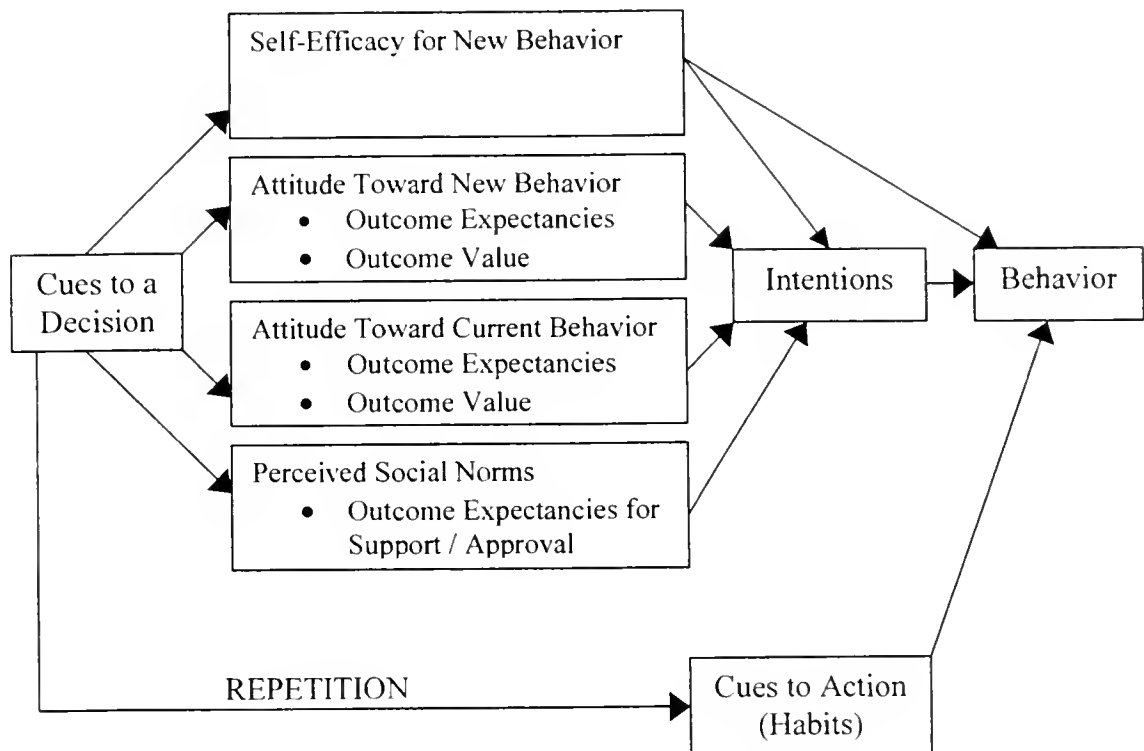


Figure 1: An Integrated Model

The criteria mentioned above in the habit theory section of this literature review outline methods of how an activity may become under automatic control, thereby increasing its frequency of occurrence (Maddux, 1993). For example, if the activity is performed enough times in the same place and under the same circumstances, it may become a regular part of an individual's life. According to this theory, self-efficacy can influence actual performance of a behavior in a direct manner (i.e., the self-efficacy

route), or indirectly through influencing the intentions route. If an individual feels he or she can competently perform a behavior, he or she may go about performing the activity more often and/or may have stronger intentions to perform the activity.

According to Maddux (1993), successful negotiation of the intention route to adherence depends on four categories: (1) self-efficacy for the new behavior; (2) attitude toward the new behavior; (3) attitude toward current behavior; and (4) perceived social norms. Higher self-efficacy expectations for a new behavior increase one's intentions to perform the behavior. One's attitude toward the new behavior includes outcome expectancies in relationship to both perceived costs and perceived benefits of the new activity, along with outcome value in relation to costs and benefits of the performance of the new activity (Maddux, 1993). One's attitude toward current behavior encompasses outcome expectancies and outcome values in relationship to the perceived costs and benefits of the current behavior. According to Maddux (1993), outcome expectancies include the protection motivation theory's perceived vulnerability of negative health consequences, while outcome value here includes protection motivation theory's perceived severity of negative health consequences. Perceived social norms include one's expectations of support and approval from others in relation to the activity. Also included in perceived social norms is the value that one places on support and approval from others (Maddux, 1993).

Self-determination Theory

Self-determination theory (Ryan & Deci, 2000) explains self-regulation in terms of one's innate tendencies toward growth and intrinsic motivation. It posits three innate psychological needs related to intrinsic motivation: competence, relatedness, and

autonomy. Within self-determination, Deci and Ryan (1985) posit a sub-theory they call organismic integration theory (OIR). This theory seeks to explain the different categories of motivation for all kinds of activities. OIR is separated into six stages of self-regulation. Lack of motivation is characteristic of the non-regulation stage. Those people in this stage are simply not performing a particular activity. The next four stages of OIR are all categorized as external motivation categories (Deci & Ryan, 1985). The first external motivation category, external regulation, is characterized by regulation of an activity's performance via externally administered rewards and punishments (e.g., doing a report to avoid being fired by the boss). Introjected regulation is motivation via an internal locus of causality, but due to factors not perceived as part of oneself (e.g., doing a report to avoid the guilt of having to face the boss without having completed the project). Regulation through identification is the third external regulation category. This type of external motivation is characterized by personally realizing that an activity is of importance to one's goals in life (e.g., doing a report because it allows one to keep one's job, thereby being able to feed and clothe one's family). The final external motivation category is the external motivation category most closely associated with intrinsic motivation: integrated regulation (Deci & Ryan, 1985). This regulation category is characterized by one's performance of activities due to their congruence with one's values and goals (e.g., doing a report because it will benefit a cause that one believes in).

The final OIR regulatory category discussed by Ryan and Deci (2000) is intrinsic regulation, characterized by the performance of an activity due to the enjoyment that performing the activity brings about (i.e., doing a report because one loves to write about the topic of that report). The more integrated and internalized an activity becomes, the

more self-determined (i.e., intrinsic) is one's motivation for that activity. The more intrinsic one's motivation is for an activity, the more likely it is that one will adhere to that activity long-term; even without the rewards sometimes provided by one's environment and in spite of major obstacles to its performance (Ryan & Deci, 2000). OIR also includes ideas regarding the factors that either help or hinder one's chances of moving closer to experiencing more intrinsic motivation for activities. For a more thorough discussion of this motivation continuum and how to facilitate more intrinsic motivation for more activities, see Ryan and Deci (2000).

Past Adherence Research Methodology

There are many adherence studies in which factors contributing to (or detracting from) participants' adherence to various kinds of activities have been examined (i.e., Catz, Kelly, Bogart, Benotsch, & McAuliffe, 2000; Corrigan, 2002; Gavin, 1988; Pizzari, McBurney, Taylor, & Feller, 2002; Potgieter & Venter, 1995; Wankel, 1993). These studies use a variety of different self-regulation models to investigate adherence to a wide range of different activities. Regardless of what type of activity is being investigated and/or from which theoretical standpoint adherence to that activity is being studied, the method by which adherence is investigated is often quite similar. Typically, participants in these studies are categorized as either adherent or nonadherent to the behavioral regimen under investigation (e.g. "adherers" and "nonadherers" to an eight-week exercise program or a medically prescribed drug regimen). The different factors that seem to contribute to participants adhering to or dropping out of the particular regimen under study are then isolated (e.g., different levels of motivation for the exercise program or issues related to access to proper medication). Finally, the differences between those

participants labeled adherent and those participants labeled nonadherent are analyzed and interpreted.

Many of these types of adherence studies have yielded interesting and useful results regarding adherence to such specific activities as exercise (e.g., Douthitt, 1994; Dubbert, 1994; Litt, Kleppinger., & Judge, 2002) and compliance with other health regimens (e.g., Belgrave & Lewis, 1994; Catz, Kelly, Bogart, Benotsch. & McAuliffe, 2000; Corrigan, 2002, Molassiotis, Nahas-Lopez, Chung, Lam, Li, & Lau, 2002; Pizzari, McBurney, Taylor, & Feller, 2002) . However, these studies tend to dichotomize individuals' adherence abilities through categorization of participants as either completely adherent or nonadherent individuals. Thus, these types of investigations have often failed to take into consideration the following facts: (1) that most persons experience various levels of adherence to activities (rather than being completely “adherent” or “nonadherent”) and (2) that most people are quite adherent to some activities in their lives (e.g., the consumption of a daily breakfast meal or the viewing of a favorite weekly half-hour television program) while being relatively nonadherent to other activities that they would like to consistently perform in their lives (e.g., lifting weights on a regular basis, reading, or writing in a journal).

Most individuals have a variety of activities that they are motivated to perform. However, only a certain proportion of these desired activities are actually performed, and an even smaller proportion of these desired activities are performed on a regular basis. In other words, people have differing levels of adherence to a variety of behaviors that they are motivated to or desire to perform. Much of the previous adherence research mentioned above has not taken this fact into consideration. Many previous adherence

investigations have also failed to isolate reasons that individuals are both quite adherent to some activities in their lives that they would like to be adherent to and at the same time relatively nonadherent to other activities in their lives that they perceive as desirable (e.g., Dishman & Buckworth, 1997; Douthitt, 1994; Wankel, 1993).

The variations discussed above in each individual's adherence levels to numerous desirable activities make it possible to investigate whether differing levels of certain adherence-influencing factors may combine to contribute to a person being highly adherent to some desired activities while experiencing low levels of adherence to certain other desired activities. It also makes the following question apparent: what are the most influential and relatively modifiable factors important to adherence across a variety of activities? A study focusing on answering this question was conducted by Higley and Tucker (2000). This study, investigating the major factors contributing to adherence and lack of adherence to over 60 different activities in 301 individuals, yielded five modifiable "cross-activity adherence-influencing factors" (i.e., five relatively modifiable factors that were influential to participants' adherence across a variety of activities). These five factors, to be discussed later, are hypothesized to be influential to a concept coined by the author called "adherence efficacy."

Adherence Efficacy

Adherence efficacy is a term meant to stand for one's level of belief in one's ability to adhere to most any desired activity over a desired span of time. If high adherence efficacy brings about the same consequences as high self-efficacy in specific activities, then strengthening individuals' adherence efficacy will improve the probability of adherence to a variety of behavioral regimens even before such regimens are begun

(e.g., Bandura, 1977, 1982, 1995). It may be that high levels of adherence efficacy can positively influence adherence to activities that individuals desire to perform regularly. Theoretically, this would be accomplished by increasing individuals' confidences in their abilities to adhere to numerous activities over a significant period of time through strengthening their competencies in regards to dealing with the most common relatively modifiable barriers to adherence to many activities that may present themselves over time (i.e., the "modifiable cross-activity adherence-influencing factors"). Adherence efficacy may eventually replace the term "willpower," a term that so often is associated with an inborn trait (i.e., one either has willpower or does not have it). Replacing the term "willpower" with "adherence efficacy" may help more people to associate their persistence abilities with skills which can be learned and strengthened rather than associating their adherence abilities with forces that are completely out of their control.

The Modifiable Cross Activity Adherence-Influencing Factors

The five modifiable cross activity adherence-influencing factors discovered by Higley and Tucker (2000) were (1) motivation, (2) perception of time availability, (3) accessibility, (4) enjoyment, and (5) social support. These five factors were the most influential to individuals' categorizing desirable activities as either adhered to or not adhered to. Thus, these five factors would seem to be the most influential to adherence efficacy. The focus of the discussion will now turn to these five factors and their associations with adherence to individual activities.

Motivation. It is well documented that motivation is an important factor in regular performance of activities (e.g., Bandura, 1982,1995; Guillet, Sarrazin, Carpenter, Trouilland, & Curry, 2002; Loehr & Schwartz, 2003; Ryan & Deci, 2000, Senecal,

Nouwen, & Pizzari, McBurney, Taylor, & Feller, 2002, White, 2000, Williams & Bond, 2002). In fact, individuals perform few to no activities for which they have no motivation. Motivation can come from two main sources: external and internal factors (Ryan & Deci, 2000). External factors that commonly motivate people include money, prestige, and awards. Internal factors include personal satisfaction, pride, health, well-being, and enjoyment.

The ability to motivate oneself seems to be a skill that would greatly increase one's ability to adhere to a multitude of activities. For example, a consistent system of rewards and punishments may help increase motivation for certain activities. However, Csikszentmihalyi (1990) states that internal factors (i.e., intrinsic motivation) are frequently the most effective motivators, an idea echoed by many, including Ryan and Deci (2000). It seems that encouraging more internal motives for activities helps to cultivate higher levels of adherence to many activities (i.e., performing a weight-lifting routine for enjoyment rather than purely for cosmetic reasons or working for personal satisfaction instead of for recognition from one's boss). Furthermore, Csikszentmihalyi (1990) states that more internalized goals increase the probability of enjoyment of activities, which, as stated before, can increase motivation for and adherence to many activities. Internalizing one's motivation also serves to put an individual in more control of the rewards of performing activities (and less dependent on outside sources of reward). This ability to control one's motivation can contribute to more consistent motivation levels (Ryan & Deci, 2000). Thus, Higley and Tucker's (2000) finding of motivation as a major contributor to cross-activity adherence is corroborated by other research in this area.

Perception of time availability. The perception of consistently having enough time to perform an activity can affect one's adherence to that activity (Pizzari, McBurney, Taylor, & Feller, 2002). Indeed, through his many talks and interactions with individuals seeking to improve adherence to various activities, the author has found that the most common reason given by many people who would like to participate more frequently in a desired activity (yet do not do so on a regular basis) is that they lack the time to perform the activity regularly. This anecdotal evidence for the importance of perception of time availability has been corroborated by Higley and Tucker (2000). Indeed, many people seem to live in a state of "time crisis," believing that they have little or no control over the amount of time available for them to participate in such activities as leisure or health-promoting activities. Often, effective time management seems to be helpful in assisting people who frequently experience time crises in their lives.

Effective time management is often conceptualized as the ability to perform as many activities as possible within a limited amount of time. However, Covey (1989) describes time management in a different manner. Influenced by his observations of effective people, Covey's (1989) conceptualization of time management eschews the notion of fitting as many activities as possible into the hours of the day. Instead, his idea of effective time management emphasizes effectively cultivating and maintaining one's important relationships while also attaining important desired results in life. Ironically, this theory of time management can more accurately be described as "self-management" (Covey, 1989). However, Covey (1989) retains the term "time management" because it seems to more effectively communicate the idea of making more time available for the important things in life than does the term "self-management."

One's time can be spent in four different ways (Covey, 1989). The specific ways in which time is spent can be described by a 2 X 2 matrix appraising both the importance/non-importance of activities and whether these activities are urgent or not urgent (see Figure 2). Urgency of an activity has to do with the degree to which an

	<u><i>Important Activities</i></u>	<u><i>Non-Important Activities</i></u>
<i>Urgent Activities</i>		
<i>Not Urgent Activities</i>		

Figure 2: Time Spent in Activities

activity requires immediate attention (more immediacy required = more urgent activity), while importance of an activity has to do with an activity's relationship to one's values and/or goals (stronger relationship to one's goals = more important activity).

According to Covey (1989), skilled time managers avoid spending much time on unimportant activities, whether they are urgent or not. Activities with weak associations with their goals simply do not get much attention. Skilled time managers are also able to avoid allotting too much of their time to urgent important activities by proactively focusing their time and effort on many important matters before they become urgent matters. For example, a skilled time manager in the business world may decide that some phone calls from certain organizations that she used to handle herself (which may be defined as unimportant and urgent activities in her world) can be handled instead by her

secretary. While he handles these calls, she instead meets with crucial people in her company regarding trouble areas in their jobs that have consistently been a struggle for them to handle (an activity which may be defined as important and not urgent in her world). Before these areas come up again (e.g., inefficient “closing” of sales calls, ineffectiveness regarding following of company protocol due to poor interpersonal skills) the skilled time manager may be able to proactively handle these problems before they can occur again instead of spending her time on calls that may be handled just as effectively by her secretary.

Thus, the goal of effective self/time management is to decrease time spent dealing with unimportant matters and urgent important matters by increasing time spent on non-urgent important affairs (as defined by one’s roles and goals in life) as much as possible. An effective time manager’s time management matrix looks more like the one shown in Figure 3, with the important, not urgent box dominating the matrix. Those who are more able to manage their time centered around their values may be more likely to perceive more control over their ability to participate in desired activities on a more consistent basis (Covey, 1989). These people may also be less likely to perceive time as an obstacle to adherence to a variety of desired activities that they deem important to their values and goals in life. Thus, it seems that increased perception of time availability for desired activities will positively influence adherence across many activities (as long as these activities are deemed important), thus bolstering mastery over one’s persistence abilities.

Accessibility. Another seemingly obvious roadblock to consistent participation in desired activities is the lack of an individual’s ability to secure the equipment and/or the resources necessary in order to perform the activities (Gavin, 1988). For example, one

	<u>Important Activities</u>	<u>Non-Important Activities</u>
<i>Urgent Activities</i>		
<i>Not Urgent Activities</i>		

Figure 3: Time Spent in Activities

cannot expect to adhere to a weight-lifting routine without the ability to purchase weights or gain access to a weight room. Accessibility is crucial to adherence, because the inability to gain access to an activity's required equipment almost always rules out participation in that activity, and thus requires the exploration of other routes to similar ends. Unfortunately, low accessibility seems to all too often decrease adherence to a particular activity (and often, promotes forgetting about the activity) rather than encouraging thought regarding how one may increase accessibility and/or generate alternative activities with similar ends but fewer accessibility challenges.

For example, a woman may decide that in order to increase her physical fitness, she wants to begin to lift weights. However, she may decide that the gym closest to her home charges more money than she can afford for membership. Therefore, joining a gym is ruled out, which may cause her to give up on her goal of increased physical fitness. Alternatively, this woman may instead begin to think about how she may join a gym that does not charge as much as the gym nearest her home or how she may be able to get a discounted price on a membership to the nearby gym. Furthermore, she may pursue less costly routes to physical fitness, such as jogging or implementation of a push-

up and sit-up routine, and decide that gym membership is not the only route to increased physical fitness. This illustration is meant to point out the crucial role that accessibility often plays in adherence to many activities. Namely, that without the required equipment readily available or a flexible approach to thinking about an activity, one cannot adhere as easily to certain activities (e.g., a weight-lifting routine) and may even be more likely to give up on thinking about and/or adhering to any sort of activity (e.g., a push-up and sit-up routine) that brings about similar ends to those activities originally thought about. Thus, it is likely that cross-activity adherence will be influenced by issues centered around accessibility.

It must be noted that for the purposes of this study, accessibility issues are concerned with financial and temporal obstacles to participation in an activity. The time aspect of accessibility is slightly different from the factor of perception of time availability mentioned earlier in that the time aspect of accessibility deals with more objective time issues than does the person-centered time perception factor. Although there is certainly not a clear cutoff point whereby perception of time availability becomes an issue of accessibility, the difference between these time factors can be illustrated through the following comparison. A weightlifter who lives two hours to the closest weight room would be likely categorized as someone with an access problem. On the other hand, a weightlifter who lives five minutes from the closest weight room, but cannot find time in his or her schedule to go to that weight room would be more likely to be categorized as someone who has more of a time perception issue.

Enjoyment. Most people use their leisure time to engage in activities that they enjoy (Wankel, 1993). Wankel (1993) defines enjoyment as the positive emotions

resulting from biological satisfaction, cognitive growth and/or cognitive achievement. Enjoyment has been identified as a major defining feature of intrinsic motivation. That is, a major reason for intrinsic motivation is the enjoyment that results from an activity's performance (Loehr & Schwartz, 2003; Ryan & Deci, 2000; Wankel, 1993). Intrinsic motivation is optimal for long-term adherence to activities as well as for deeper enjoyment of these activities (Ryan & Deci, 2000).

Factors that cultivate enjoyment have been a focus of much research. Five variables important to enjoyment, as delineated by Wankel (1993), are (1) goal-setting, (2) social interaction, (3) challenge, (4) competence, and (5) "flow." Setting goals, such as developing recreational skills and social relationships, tends to contribute to enjoyment, while social interaction contributes to enjoyment through such benefits as group identification and social reinforcement (Wankel, 1993). The ability to challenge one's competencies against reasonable goals is Wankel's third variable, and his fourth variable has to do with the increased feelings of competency achieved through attaining such goals, which seems to the author to be associated with Bandura's (1995) self-efficacy.

The final factor mentioned by Wankel (1993) is "flow," a term coined by Csikszentmihalyi (1990) through his investigations of peak experiences across many cultures and over the course of four decades. Flow is defined as the state of full absorption in an activity, occurring when one's skills are at an equal level with one's challenges. Too challenging an activity tends to bring on uncomfortable levels of anxiety in an individual, while too little challenge required by an activity promotes boredom in an individual. Both of these situations are constraints to flow, and both can thus hamper

enjoyment (Csikszentmihalyi, 1990). During flow states, only the present activity seems to matter, and the activity is so enjoyable that individuals may actually go to great lengths or work to overcome many obstacles in order to re-experience (or adhere to) that activity (Csikszentmihalyi, 1990). Thus, flow would seem to be a crucial component to long-term adherence across activities. Actions merged with awareness, concentration on a small field of stimuli, and a loss of ego also commonly occur during states of flow.

Wankel's ideas are not the only ones in regards to what variables constitute enjoyment. Other concepts such as perceived freedom and self-determination have been deemed by other authors as crucial to enjoyment (Ryan & Deci, 2000; Wankel, 1993). Csikszentmihalyi (1990) describes seven elements that make enjoyment of an activity more likely to occur. Table 1 outlines Csikszentmihalyi's (1990) elements of enjoyment.

TABLE 1.

The Elements of Enjoyment.

A challenging activity that requires skills
A merging of action and awareness
Clear goals and feedback
Concentration on the task at hand
Feeling in control (even when not necessarily in control)
The loss of self-consciousness
The transformation of time (time seems to speed up or slow down)

Although certainly not the only factor crucial to adherence (Gavin, 1988), enjoyment has been shown to contribute to individuals' adherence (especially in the long-term) to such

activities as exercise regimens (Wankel, 1993). In fact, many long-term exercisers have stated that the most important reason for their adherence to their physical routine is their enjoyment of this routine (Perrin, 1979). Additionally, Boothby, Tungatt, and Townsend (1981) found that the primary reason for dropping out of an exercise regimen is the loss of interest in or lack of enjoyment of that regimen. For these reasons, along with “common sense,” it seemed apparent that adherence across activities will likely be influenced by individuals’ enjoyment of such activities.

Social support. The literature abounds with reports that those people who perceive themselves to be supported by others are healthier and happier than those without such perceived support (e.g., Corrigan, 2002; Cutrona & Russell, 1987; Duncan, McAuley, Stoolmiller, & Duncan, 1993; Guillet, Sarrazin, Carpenter, Trouilland, & Curry, 2002; Litt, Kleppinger, & Judge, 2002; Molassiotis, Nahas-Lopez, Chung, Lam, Li, & Lau, 2002; Myers, 2000; Pizzari, McBurney, Taylor, & Feller, 2002). Social support has been linked with increased self-esteem, self-efficacy, tangible assistance, and increased sources of feedback and information (Cutrona & Russell, 1987; Duncan & McAuley, 1993). Social support has also been associated with such phenomena as recovery from heart disease, cessation of smoking, medication treatment adherence, and involvement in regular exercise (Catz, Kelly, Bogart, Benotsch, & McAuliffe, 2000; Cutrona & Russell, 1987; Duncan, McAuley, Stoolmiller, & Duncan, 1993; Litt, Kleppinger, & Judge, 2002). Due to these and the many other benefits of social support, some health agencies promote social support as a part of their physical health promotion interventions (Cutrona & Russell, 1987).

Equally abundant in the social support research on the positive effects of social support on health are investigations linking it with adherence (e.g., Bandura, 1982; Catz, Kelly, Bogart, Benotsch, & McAuliffe, 2000; Duncan & McAuley, 1993; Gavin, 1988). Bandura (1982) states that habits that serve one well usually become integrated into one's daily routine. However, when environmental demands overwhelm one's personal capabilities to adhere, one may need the support of others in order to continue performance of an activity (Bandura, 1982). Moreover, many different self-regulation models (e.g., the theory of reasoned action, Maddux's integrated model) state that a crucial variable in adherence to an activity is an individual's subjective ideas regarding the beliefs of significant others as to the value of that particular activity (Gavin, 1988; Maddux, 1993). That is, the perceived opinions of important people in individuals' lives may influence their adherence to certain activities. Thus, social support is another factor that seems likely to influence adherence across many kinds of activities.

Conclusions Regarding the Modifiable Cross-Activity Adherence-Influencing Factors

This concludes the discussion about the 5 modifiable cross-activity adherence-influencing factors that were the focus on the intervention under study. It may be that many individuals are not aware of the various modifiable factors that influence their abilities to adhere to activities. It may also be that those who are aware of these factors are not well versed regarding how to modify them in order to increase their adherence to many activities. Although some people may be cognizant of many of these factors, cognitive awareness alone is not the end goal concerning facilitation of cross-activity adherence. It is also imperative to teach people how they may experientially manipulate

these adherence-influencing factors in order to promote adherence to various activities over a desired period of time. Teaching individuals how to accomplish this may help to increase their adherence efficacy, which may in turn increase individuals' adherence to a variety of desired activities. The focus of this discussion will now turn to the development of an intervention designed to do the following: (1) increase levels of adherence efficacy in individuals and (2) increase actual adherence to various activities to which participants desire increased adherence.

The Development of an Adherence Efficacy Intervention

There were many factors that contributed to the development of the content of the adherence efficacy intervention under study in the current investigation. Over the course of two years, much thought, consultation, and research was engaged in regarding what material to present in the intervention and how to present this material in the most effective ways (e.g., methods of ensuring higher probabilities of intervention participants' actually utilizing the intervention material to increase their persistence abilities rather than simply learning about the material without putting it to use in their lives). This thought, consultation, and research was crucial to each of the following areas: (1) the development of the content of the intervention, (2) the process of how the intervention material was presented, and (3) the intervention assessments. The discussion will now turn to these three factors.

Influences on the intervention content. The initial influence of the intervention content was the previous study uncovering the five cross-activity adherence-influencing factors mentioned above (Higley & Tucker, 2000). Also influential were many articles written by some of the best researchers and practitioners in the areas of motivation (e.g.,

Bandura, 1995; Ryan & Deci, 2000), time perception (e.g., Covey, 1989), enjoyment and happiness (e.g., Csikszentihalyi, 1990; Myers, 2000), and social support (e.g., Russel & Cutrona, 1987). Also vital to the creation of the intervention was work in the field of multicultural counseling (e.g., Atkinson, Morten, & Sue, 1998) which provided the impetus for emphasizing flexibility in the way that intervention activities were “assigned,” thus increasing the likelihood that these intervention activities would be helpful to a larger variety of people holding many different worldviews and experiencing a diversity of persistence challenges.

Furthermore, some pre-intervention modifications of the adherence efficacy intervention’s content were implemented based on comments from certain individuals in a pilot study ($n = 13$) conducted by the primary investigator. This pilot group will be discussed in more detail in the section below entitled “Influences on the Intervention Assessments.” An example, of one such comment was from a female pilot group participant who stated that she could more thoroughly enjoy an activity to which she was attempting to adhere on a more frequent basis by performing the activity in an enjoyable place. Many participants in the pilot group agreed; thus, the suggestion of performing an activity in an enjoyable place was added to the intervention material in the section covering enjoyment.

Another influence on the content of the intervention were various books and tapes discussing some of the adherence-influencing factors by “popular” sources such as Covey (1989) and Tice and Quick (1997) that seem to the author to hold meaning for many different types of people and that seem to enhance positive self-change in many different individuals and organizations. Finally, some of the “tips for getting the most out of the

intervention” were influenced by all of the factors mentioned above as well as the author’s own observations of what makes for a successful participant in interventions focusing on the facilitation of positive self-change in general (e.g., support groups, academic achievement groups, etc.). Some of these tips for getting the most out of the intervention were: (1) talk to someone supportive at least once a week about what you are doing in this intervention, (2) review the intervention’s Participant Packet material frequently and apply the techniques discussed in the packet to many areas of your life, (3) goal-set to make the techniques that you learn a regular part of your life (not only during the course of this training program), and (4) take all setbacks in applying these techniques as temporary obstacles to successfully integrating these techniques into your life.

Influences on the intervention process. Important influences on the process of the intervention included the comments made by the participants in the pilot study mentioned above ($n=13$). This pilot study involved 8 female and 5 male volunteer participants from the Gainesville, Florida community who participated in a pilot version of the adherence efficacy intervention tested in the current study. Throughout the pilot intervention, these participants were asked to provide feedback regarding their experience of the pilot intervention and advice regarding how it could be improved. Feedback from the pilot study participants included the almost unanimous opinion that the pilot adherence efficacy intervention would be more effective and practical for them if it were not structured over such a long time span (i.e., seven weeks). Thus, the final version of the adherence efficacy intervention was changed from a seven-week to a five-week intervention and then finally to a three-week intervention with meetings lasting longer (i.e., from one hour-long meetings to two hour-long meetings).

Also influential to the process of the intervention were the various discussions and trainings experienced by the author as a student of Dr. Pat Korb, director of the Gestalt Center of Gainesville, a renowned expert in group process. Various process-oriented books also contributed to the process of the intervention (e.g. books authored by Korb, Gorrell, & Van De Riet, 1989; Perls, Hefferline, & Goodman, 1951; Zinker, 1977.). Also important to the process of the intervention were certain ideas regarding how to encourage “homework” completion in individuals (Hill & Nutt-Williams, 2000), how to increase intrinsic motivation (Ryan & Deci, 2000), and how to be sensitive to teaching people with different learning styles (Hanson & Hanson, 1999). Finally, as mentioned above, there was also an emphasis placed on awareness of many different worldviews during the development of the process of the intervention (e.g., Arredondo et al., 1996).

Influences on the intervention assessments. The first step in constructing assessments for the intervention was the creation of a scale to measure the construct of general adherence efficacy. In order to do so, the general self-efficacy scale (Sherer, Maddux, Mercandante, Prentice-Dunn, Jacobs & Rogers, 1982) was used as a model for this new adherence efficacy scale. The items on the general self-efficacy scale were then modified by the author to reflect efficacy in the area of adherence abilities. The new adherence efficacy scale [i.e., the General Adherence Efficacy Scale (GAES)] was then tested on a group of undergraduate students in order to provide evidence of its validity and reliability. The relevant statistics on the GAES are discussed in the third chapter of this document under the section entitled “Instruments.”

There were also items on the GAES generated in order to assess the degree to which participants adhere to the “tips for getting the most out of the intervention” (e.g.,

whether participants reviewed the intervention material, whether participants spoke with another person about the intervention material in between intervention sessions). Finally, in addition to the GAES, certain items were generated by the author in an attempt to assess participants' feelings about their ability to modify each of the five adherence-influencing factors focused on throughout the course of the intervention in ways that facilitated increased adherence to participants' selected desired activities (e.g., how effective participants feel they are at motivating themselves, how well they can set aside time for their selected desired activities).

All of these assessments were then evaluated by two psychologists, one with expertise in test construction, and one with expertise in qualitative methods of assessment. Both of these psychologists' feedback was incorporated into the intervention assessments. Finally, suggestions from the participants in the pilot study described above regarding assessment item clarity and other assessment issues were taken into consideration. For example, due to a majority of participants expressing frustration at the amount of ambiguous open-ended questions included in the intervention assessments and the time it took to answer such questions, some qualitative items were removed from the intervention's assessment battery (e.g., items asking participants to write about their abilities to motivate themselves for important activities in the past).

The pilot study mentioned above was conducted on the pilot adherence efficacy intervention developed by the author. Due to some participant scheduling conflicts (e.g., end of the college student participants' academic semester, prearranged family plans), there were not enough data from the pilot study participants to meaningfully assess the efficacy of the pilot intervention. However, most pilot study participants reported the

following: (1) feeling more confident in their abilities to utilize at least some of the five cross-activity adherence-influencing factors in order to increase adherence to certain participant-selected “target activities” (i.e., activities to which pilot study participants desired increased adherence) in their lives, and (2) actual increased adherence to these target activities. Additionally, the following information was determined from the pilot study: (1) (as mentioned above) in order to decrease drop-out rates, the pilot adherence efficacy intervention should be modified from a seven week-long intervention to a three week-long intervention, and (2) through increasing the length of each intervention session, it was possible to shorten the adherence efficacy intervention from seven weekly sessions to three weekly sessions without compromising the intervention’s thoroughness.

Conclusion of the Review of the Literature

In their study mentioned above, Higley and Tucker (2000) put forth the following questions: (1) can manipulation of the five modifiable cross-activity adherence-influencing factors mentioned above increase the level of adherence to individuals’ selected desired activities, (2) can interventions focused on modifying such cross-activity adherence-influencing factors increase “adherence efficacy” in individuals, and (3) will increased adherence efficacy in individuals lead to higher levels of adherence to more of their desired activities? The present study sought to investigate these three questions. In other words, this study was designed to assess the efficacy of an intervention focusing on assisting participants in modifying the five factors that seem to be the most influential factors to adherence across many activities mentioned above. The focus of this study was threefold: (1) to assist the adherence efficacy intervention participants in raising their adherence efficacy levels, (2) to increase intervention participants’ adherence to their

selected desired activities (i.e., activities to which participants desired increased adherence), and (3) to assess the degree to which higher levels of adherence efficacy increase actual self-reported levels of adherence across the intervention participants' desired activities.

Research Hypotheses

The following research hypotheses were tested:

- 1) The first hypothesis states that intervention group participants will report significantly greater increases in General Adherence Efficacy Scale (GAES) scores after the adherence efficacy intervention than control group participants will report over the same interval of time.
- 2) The second hypothesis states that more favorable scores on certain of the "tips for getting the most of the intervention" will be associated with the following in intervention group participants: (a) higher levels of GAES score increases at time 2, and (b) higher increases in levels of participant-reported actual adherence to certain participant-selected desired activities (i.e., target activities) at time 2.
- 3) The third hypothesis states that intervention group participants will experience increases in levels of self-reported adherence to certain participant-selected desired activities (i.e., target activities) from time 1 to time 2.
- 4) The fourth hypothesis states that increases in GAES scores (i.e., levels of reported adherence efficacy) in intervention group participants will be associated with actual increased adherence to certain participant-selected desired activities (i.e., target activities).

CHAPTER 3 METHOD

Participants

Twenty-seven (27) individuals participated in the current investigation. These participants were recruited from the sales and supervisory teams at the Gainesville Health and Fitness Centers (GHFC). The GHFC supervisory team served as the intervention group ($n = 13$), while the GHFC sales team served as the control group ($n = 14$). The intervention group was made up of six females (46.2%) and seven males (53.8%). Eleven (84.6%) of the intervention group individuals identified themselves as “White/Caucasian American,” one (7.7%) identified herself as “Asian American,” and one (7.7%) identified himself as “Black/African American.” The control group consisted of nine females (64.3%) and five males (35.7%). All fourteen control group participants identified themselves as “White/Caucasian American.”

All of the study’s participants indicated their age on a scale from 1 (18-25 years old) to 14 (85 years old or older). All of the age categories consisted of increments of five years except for the first and last age categories. The mean age response for the intervention group was 1.92 ($SD = .95$). Five (38.5%) of the intervention group individuals reported falling within the age range of 18-25 years old, five more reported being between 26-30 years old, two (15.4%) reported falling between 31-35 years old, and one (7.7%) reported being between the ages of 36-40 years old. The mean age response for the control group was 4.63 ($SD = 2.37$). Two (14.3%) of the control group participants reported falling within the age range of 18-25 years old, two reported being

between 26-30 years old, one (7.1%) reported falling between 31-35 years old, two reported being between the ages of 36-40 years old, two reported being between the ages of 41-45, three (21.4%) reported being between the ages of 46-50, one reported being between the ages of 51-55, and one reported being between the ages of 61-65.

All participants in the study were also asked to report their education status. Four (30.8%) of the intervention participants reported completing high school while nine (69.2%) of these participants reported having completed college or technical school. Three (21.4%) of the control group participants reported completing high school, ten (72.4%) reported having completed college or technical school, and one (7.1%) of the control group participants reported having completed graduate or medical school. All of the study's participants also reported their yearly household income range from 1 (Below \$10,000) to 12 (Above \$500,000). The mean income score reported for the intervention group was 2.38 (SD = 1.45). The annual household income of four (30.8%) of the intervention individuals was reported to be below \$10,000, five (38.5%) of these individuals reported an annual household income of between \$10,001-\$20,000, one (7.7%) individual reported an income of between \$20,001-\$35,000, one reported an income of between \$35,001-\$50,000, and two intervention group participants (15.4%) reported annual household incomes of between \$50,001-\$75,000. The mean income score reported for the control group was 4.71 (SD = 2.16). The annual household income of one (7.1%) of the control individuals was reported to be below \$10,000, two (14.3%) of these individuals reported an annual household income of between \$10,001-\$20,000, one control group participant reported an income of between \$20,001-\$35,000, two reported an income of between \$35,001-\$50,000, three (21.4%) reported an income

between \$50,001-\$75,000, one reported an income of between \$75,001-\$100,000, three reported making between \$100,001-\$150,000, and one of the control group participants reported an annual household income of between \$150,001-\$200,000.

Instruments

An assessment battery (AB) consisting of the following instruments were administered to all participants in this study: (a) the General Adherence Efficacy Scale (GAES) and (b) a Demographic Data Questionnaire (DDQ). The GAES is a 17-item inventory created by the investigator, based on the General Self Efficacy subscale of the Self-Efficacy Scale (SES; Sherer, Maddux, Mercandante, Prentice-Dunn, Jacobs & Rogers, 1982), to assess participants' "adherence efficacy" (see Appendix A). The General Self-Efficacy subscale of the SES is briefly discussed below. On the GAES, participants are instructed to rate the degree of truth (from 1 = Strongly Disagree to 5 = Strongly Agree) of 17 statements regarding participants' feelings of efficacy in relation to their general adherence abilities. The GAES, the construction of which will be discussed in more detail below, yields one total score (possible range = 17-85), and is meant to quantitatively measure adherence efficacy on three major dimensions: (1) willingness to initiate adherence behavior (e.g., "If adhering to an activity appears to be too complicated, I will not even try to adhere to it"), (2) willingness to expend effort in order to persist at adherence behaviors (e.g., "If I can't adhere to an activity at first, I keep trying until I can"), and (3) ability to overcome obstacles to adherence (e.g., "When unexpected problems occur that make it difficult to continue adhering to an activity, I don't handle them well").

The creation of the GAES began with items on the General Self-Efficacy subscale of the SES being altered by the author in order to reflect efficacy in the area of adherence. A psychologist with expertise in the field of test construction then examined the items. The GAES was then piloted on a group of students in a personal growth course at the University of Florida ($n = 90$). A Cronbach's alpha of $r = .90$ was obtained for the GAES and its test-retest reliability was $.85$ ($p = .01$).

Correlations ($n = 90$) among the GAES (i.e., the 17-item scale) and both the General Self-Efficacy subscale of the SES and the Perceived Stress Scale (PSS; Cohen, Kamarck & Mermelstein, 1985) were performed in order to help establish the validity of the GAES. These correlations revealed associations that were similar to the investigator's predictions. Specifically, it was predicted that GAES scores would (1) have a strong positive correlation with scores on the General Self-Efficacy subscale of the SES and (2) have a negative correlation with scores on the PSS, with this correlation being somewhat weaker than the association between the GAES and the General Self-Efficacy subscale of the SES. Controlling for social desirability (as measured by the Marlowe-Crowne Social Desirability Scale, short form [M-CSDS (20), Marlowe & Crowne, 1961], participants' scores on the GAES were significantly associated with participants' scores on both the GSES ($r = .78$, $p = .001$) and the PSS ($r = -.56$, $p = .001$) in predicted directions and in predicted strengths.

The General Self-Efficacy subscale (GSES) of the SES is used to measure general self-efficacy (i.e., self-efficacy that is not tied to any specific behaviors and/or situations). A Cronbach alpha of $.86$ was obtained for the GSES, and construct validity was established through correlations with other measures (Sherer, Maddux, Mercandante,

Prentice-Dunn, Jacobs, & Rogers, 1982). For example, the GSES was moderately correlated with the Rosenberg Self-esteem Scale (RSS; $r = -.510$), with lower scores on the RSS indicating higher self-esteem. Criterion validity for the GSES was obtained through demonstrating that individuals with past success in vocational, educational, and military successes were more likely to score higher on the GSES.

The Perceived Stress Scale (PSS; Cohen, Kamarck & Mermelstein, 1985) is used to measure the degree to which participants experience events in their lives as stressful. The PSS measures three components of stress. These three components are the degree to which one rates life as: (1) unpredictable, (2) uncontrollable, and (3) overloading. Three samples revealed Cronbach alphas of .84, .85, and .86. Test-retest reliability was .85. Concurrent validity of the PSS was established through correlations with measures of depressive symptomatology ($r = .76, p < .001$) and with negative physical symptomatology ($r = .52, p < .001$). Predictive validity of the PSS was established through a correlation with a social anxiety measure ($r = .37, p < .001$).

The correlation between the GAES and the GSES indicated that the two assessments may measure similar constructs (i.e., general self-efficacy and general adherence efficacy) but not the same constructs. The negative correlation between the GAES and the PSS indicated that higher adherence efficacy may be associated with less general perceived stress.

The second assessment that was administered to participants in both the intervention and control groups was the Demographic Data Questionnaire (DDQ). The DDQ solicited information regarding participants' race, age, gender, annual household income, and highest level of education completed (see Appendix B).

In addition to the assessments mentioned above, there were some questionnaires administered to intervention participants alone during the study. For those participants in the intervention group only, “Adherence Efficacy Training Program (AETP) Assessments” were administered before the discussion of each of the five cross-activity adherence-influencing factors and a week after each of these five factors were discussed in the intervention (see Appendix C). These AETP assessments solicited quantitative data from the participants regarding their experiences in relation to becoming more competent at modifying each of the five cross-activity adherence-influencing factors (e.g., motivation) in order to promote adherence to certain “target activities” (i.e., activities identified by intervention participants as activities to which they would like to adhere more frequently). Intervention participants were asked in the AETP assessments to rate the degree of truth of each item from 1 (Strongly Disagree) to 5 (Strongly Agree). Examples of some of the AETP assessment items are: “I am good at motivating myself for my target activity,” and “I am good at making time for my target activity.”

Intervention participants alone were also administered intervention evaluation sheets (i.e., “AETP” Evaluation Sheets: see Appendix D) that solicited their overall opinions of the adherence efficacy intervention. Intervention participants were asked on the AETP Evaluation Sheets to rate the degree of truth of each item from 1 (Strongly Disagree) to 5 (Strongly Agree). Sample items from the AETP Evaluation Sheets are: “I found the training program to be well organized,” and “After experiencing the training program, I feel more confident in my ability to stick with more activities in my life.”

Finally, intervention participants alone also filled out AETP “tips check up” items to assess the degree to which they were adhering to the ten suggestions given at the

beginning of the intervention regarding how to best approach learning and assimilating the adherence efficacy intervention material (see Appendix E). These AETP tips check ups were administered to the intervention participants after the second intervention session. Intervention participants were asked in the AETP tips check up to rate the degree of truth of each item from 1 (Strongly Disagree) to 5 (Strongly Agree). Some sample items from the AETP tips check ups are: “I have thoroughly read the Suggested Readings given in the training program so far,” and “I take all setbacks in applying the training program techniques as temporary obstacles.”

Procedure

Participants were recruited from the supervisors and the sales team at the Gainesville Health and Fitness Centers (GHFC), a set of two local fitness centers. Due to some practical problems with random selection (e.g., the inability to have some members of both groups meet together at the same time) it was pre-determined that (1) the GHFC supervisors who chose to participate in the investigation would serve as the intervention group and (2) the GHFC sales team members who chose to participate in the investigation would serve as the wait-list control group. The wait-list control group participants were offered the intervention at a later date, as deemed ethically appropriate. Potential participants were informed of the nature of the intervention via an “introductory talk,” given by the primary investigator and/or via a talk by the GHFC general manager. Potential participants were notified of the goal of the intervention (i.e., to increase participants’ persistence abilities) and of the structure of the intervention (i.e., three two hour-long meetings convening once a week for three consecutive weeks). Potential participants were told that they were being asked to participate in an investigation into the

efficacy of an intervention meant to increase participants' adherence abilities. Potential participants were asked if they would like to do the following: (1) participate in the investigation, and (2) if part of the intervention group, participate in the evaluative portion of the intervention. All participants were informed that their involvement in the study was to be completely voluntary and that there would be no negative consequences to them for either choosing to participate or choosing not to participate in the investigation. Potential intervention participants were also informed that they may take part in the intervention without taking part in the evaluative portion of the intervention. Intervention participants were told that they may learn numerous adherence strategies as a result of participation in the intervention.

There was a 100 percent participation rate in both the intervention (supervisory) group and the control (sales) group. An informed consent form was read to and filled out by all participants before the study began. All participants were notified that all of their responses would be kept confidential and that all of their responses would be anonymous (via the utilization of participant-selected code names on all questionnaires instead of participants' real names). Intervention participants took part in an intervention consisting of one 2 hour-long meeting per week for three consecutive weeks. The primary investigator conducted each of the meetings and each meeting was conducted at the Gainesville Health and Fitness Center main building during the research participants' regular work hours. During the intervention meetings, methods of increasing adherence across activities were discussed (i.e., methods of manipulating the cross-activity adherence-influencing factors in order to favor cross-activity adherence). "weekly activities" based on the content of each of the intervention sessions (and chosen by

participants from a number of options) were then chosen by intervention participants each week (e.g., intervention participants were encouraged to put to use a motivation- or enjoyment-enhancing technique that they found to be both useful and practically applicable during the course of the week after the intervention session covering a variety of motivation- and enjoyment-enhancing techniques).

Those intervention participants interested in being involved in the evaluative portion of the intervention were asked to fill out a series of short questionnaires throughout the three intervention meetings (see Appendices A-E). Completion of these questionnaires took an average of about 10 minutes per session, for a total of about 30-40 minutes throughout the course of the three sessions. Participants were instructed to place code names on their assessments in place of their real names. There were no dropouts during the study and all assessments were completed and handed in on time. Those participants comprising the control group were asked to fill out the DDQ and the GAES at the following times: (1) during the week of the first intervention group meeting, (2) during the week of the last intervention group meeting (two weeks after the first intervention group meeting), and (3) three weeks after the last intervention group meeting. All assessments were administered and collected by the primary investigator.

CHAPTER 4 RESULTS

The first hypothesis states that intervention group participants will report significantly greater increases in General Adherence Efficacy Scale (GAES) scores after the adherence efficacy intervention than control group participants will report over the same interval of time. An ANCOVA revealed no significant differences between the intervention group ($n = 13$) and control group ($n = 13$) regarding GAES scores after the intervention (i.e., time 2) when controlling for GAES scores before the intervention [i.e., time 1; $F(1,23) = 0.95$, $p = .34$]. Both the intervention group and the control group showed increases in GAES scores from time 1 to time 2. For mean GAES scores, mean GAES difference scores from time 1 to time 2, and these score's standard deviations for both the control group and the intervention group, see Table 2.

TABLE 2.

Mean General Adherence Efficacy Scale (GAES) Scores and GAES Difference Scores From Time 1 to Time 2 for Both Control and Intervention Groups

Group	n	Time 1	SD	Time 2	SD	Diff. Score	SD
Control	13	68.31	11.66	72.14	10.81	3.23	7.40
Intervention	13	63.03	10.64	65.45	8.15	2.50	7.50

The second hypothesis states that more favorable scores on certain of the “tips for getting the most of the intervention” at time 2 will be associated with the following in intervention group participants: (a) higher levels of GAES score increases at time 2 and (b) higher increases in levels of participant-reported actual adherence to certain

participant-selected desired activities (i.e., target activities) at time 2. Pearson correlations revealed a significant association among the following: (a) improvement in intervention participants' GAES scores and higher ratings on one of the tips for getting the most out of the intervention (i.e., self-reported level of performance of weekly activities, $r = .66$, $p = .027$) and (b) discrepancy scores between intervention participants' self-reported actual performance levels and their self-reported ideal performance levels of participant-generated target activities and higher ratings on another of the tips for getting the most out of the intervention (i.e., self-reported frequency of review of the intervention's material in between intervention meetings; $r = -.62$, $p = .043$). That is, as intervention participants' self-reported frequency of review of the intervention's material increases, discrepancy scores between their self-reported actual performance levels and ideal performance levels of their selected target activities decrease (i.e., adherence to target activities improves).

The statements assessing the intervention participants' self-reported level of performance of their selected weekly activities and their frequency of review of the intervention's material in between intervention meetings are listed in Table 3. Also listed in Table 3 are correlations among these variables (i.e., intervention participants' scores regarding level of performance of their weekly activities and their self-reported frequency of review of the intervention's material in between sessions) and the following data gathered from intervention participants: (1) GAES score improvement from time 1 to time 2 and (2) change in discrepancy scores between self-reported actual performance levels and ideal performance levels of their selected target activities from time 1 to time 2, respectively.

Table 3.

Statements Assessing the Performance of Weekly Activities and the Reviewing of the Intervention Material with their Correlations Among GAES Score Improvement and Discrepancy Scores Between Actual and Ideal Performance of Target Activities.

Weekly activity assessment statement: "I thoroughly performed my weekly activity in the last week." (Possible assessment statement range score = 4 - 20)						
Mean Weekly Activity Statement Score	SD	Mean GAES Score Improvement	SD	r	p	n
13.27	4.10	2.50	7.68	.66	.027	11
Intervention material review assessment statement: "I have reviewed the material that we discussed last week at least once." (Possible assessment statement range score = 4 - 20)						
Mean Material Review Statement Score	SD	Mean Discrepancy Score Improvement	SD	r	P	n
10.91	3.81	1.59	2.02	.62	.043	11

The information uncovered through the correlations discussed above influenced the primary investigator to run two additional ANCOVAs. The first ANCOVA revealed that intervention participants' self-ratings of their level of performance of their weekly activities significantly predicted increases in their GAES scores when controlling for intervention participants' self-ratings of their own frequency of review of the intervention material in between intervention sessions [$F(1,7) = 20.24, p = .003, R^2 = .91$]. This analysis revealed that every one point increase in intervention participants' self-reported performance of weekly activities was associated with a 1.22 point increase in intervention participants' GAES scores from time 1 to time 2.

The second ANCOVA revealed that the association between review of the intervention material in between sessions and actual adherence discrepancy scores (between self-reported actual levels of performance and ideal levels of performance of intervention participants' selected target activities) approached significance when controlling for intervention participants' self-reported performance of their weekly

activities [$F(1,8) = 4.43$, $p = .068$, $R^2 = .39$]. This analysis revealed that every 1-point increase in intervention participants' self-reported review of intervention material in between sessions was associated with a .358 point improvement in intervention participants' actual self-reported adherence discrepancy scores (i.e., a closing of the gap between intervention participants' self-reported actual performance levels and ideal performance levels of their target activities) from time 1 to time 2.

The third hypothesis states that intervention group participants will experience increases in levels of self-reported adherence to certain participant-selected desired activities (i.e., target activities) from time 1 to time 2. A paired samples t-test revealed significant decreases in intervention participants' discrepancy scores between their ideal frequency of performance of their target activities and their actual performance levels of these activities [$n=12$; $t(11) = -2.548$, $p = .027$] from time 1 to time 2. Specifically, the intervention groups' mean discrepancy scores between their self-reported actual performance of their target activities and ideal performance of their target activities decreased from -5.13 (SD = 7.65) times per week at time 1 to -3.67 (SD = 8.65) times per week at time 2. In other words, intervention participants' actual reported adherence to their target activities became closer to their ideal level of adherence to these activities from time 1 to time 2. For a listing of participants' target activities, their difference scores at time 1 (week 1) and time 2 (week 3), and participants' changes in difference scores from time 1 to time 2, see table 4.

Furthermore, a multiple regression revealed a significant interaction between review of material and actual adherence discrepancy scores at time 1 in terms of

predicting intervention participants' actual adherence discrepancy scores at time 2 [$F(1,7) = 18.67, p = .003, R^2 = .99$].

TABLE 4.

Participants' Target Activities, Difference Scores At Time 1 and Time 2, And The Changes In Participants' Difference Scores From Time 1 To Time 2

Participant	Target Activity	Difference Score at Time 1	Difference Score at Time 2	Change in Difference Score (Time 1 to Time 2)
1	Work Out	-3.0	-1.0	+2.0
2	Eat Healthy	-3.0	-2.0	+1.0
3	Work Out	-7.0	-1.0	+6.0
4	Running	-12.0	-	-
5	Plan Career	-3.0	0.0	+3.0
6	Physical Therapy	-29.0	-31.0	-2.0
7	Cardiovascular Exercise	-2.0	-2.0	0.0
8	Exercise	-2.0	-2.0	0.0
9	Exercise	-3.5	-2.0	+1.5
10	Weight Work Out	-2.0	-2.0	0.0
11	Spend Time w/ Brother	-2.0	0.0	+2.0
12	Cardiovascular Exercise	-3.0	-0.5	+2.5
13	Running	-2.0	-0.5	+1.5

Specifically, intervention participants who began the intervention with a larger gap in between levels of self-reported actual versus ideal performance of their target activities and who reported reviewing the intervention material in between intervention sessions experienced a larger decrease in the gap between their self-reported actual performance levels and ideal performance levels of their target activities from Time 1 to Time 2. On the other hand, those intervention participants who began the intervention with relatively small discrepancies between self-reported actual and ideal performance of their target activities seemed to be almost unaffected (regarding closing the actual/ideal target activity performance gap) by reviewing the intervention material in between

intervention sessions (see figure 4). Thus, it seems that review of the intervention material in between intervention sessions is much more important to closing the gap between actual performance levels and ideal performance levels of target activities at time 2 when this gap is relatively large at time 1 (i.e., reviewing the intervention's material seems to be immensely important to increasing adherence in those who are relatively nonadherent to the activities that they select to work on in the intervention, while not very important at all to those who are relatively adherent to these activities).

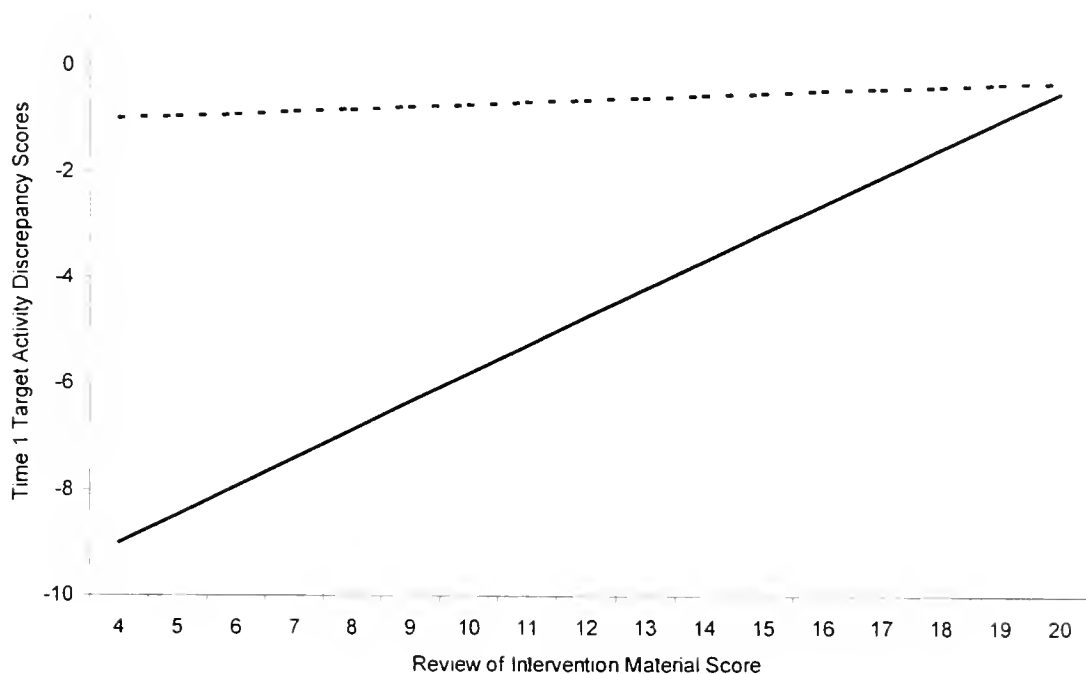


Figure 4: Interaction Between Target Activity Discrepancy Scores and Review of Intervention Material

The fourth hypothesis states that increases in GAES scores (i.e., levels of reported adherence efficacy) in intervention group participants will be associated with actual increased participant reported adherence to certain desired activities (i.e., target activities). When controlling for the intervention participants' self-reported frequency of

review of the intervention material in between intervention sessions and their self-reported level of performance of weekly activities (i.e., the two most statistically influential “tips for getting the most out of the intervention”), an ANCOVA revealed that this association was not significant [$n = 11$; $F(1) = 3.936$, $p = .088$]. However, considering the low number of participants in this analysis, these results may be interpreted as somewhat promising regarding a possible association between increased GAES scores and self-reported actual increased levels of persistence with desired activities.

CHAPTER 5 DISCUSSION

The purpose of this study was to investigate the efficacy of a three-week “adherence efficacy” intervention developed by the primary investigator. The adherence efficacy intervention has two major objectives: (1) to increase participants’ confidences in their adherence abilities, (i.e., to increase their “willpower”), and (2) to increase participants’ actual adherence to certain activities to which they reported a desire to adhere more frequently (i.e., participant-selected target activities).

The first hypothesis stated that intervention group participants will report significantly greater increases in General Adherence Efficacy Scale (GAES) scores after the adherence efficacy intervention than wait-list control group participants will report over the same interval of time. Initial results indicated that the control and intervention groups’ GAES scores increased similarly from time 1 (i.e., before the intervention group’s first meeting) to time 2 (immediately after the intervention group’s final meeting - two weeks after time 1). These results initially seemed to indicate that both the intervention and control groups experienced increased confidences in their persistence abilities over the same time interval, perhaps indicating the Hawthorne effect (Parsons, 1974) as a possible explanation for both groups’ improvement in GAES scores from time 1 to time 2. That is, it may be that all of the current study’s participants were influenced to report higher adherence efficacy scores at time 2 simply by having their adherence behaviors studied by the investigator.

Although the results of the analysis of the first hypothesis may be at first interpreted as support for an ineffective adherence efficacy intervention, it was determined that comparing the control group with the intervention group was perhaps a poor way to investigate the effects of the adherence efficacy intervention under study for four major reasons: (1) the previous evidence of excellent GAES test-retest reliability (Higley & Tucker, 2000) calling into question possible reasons for control group improvement in GAES scores from time 1 to time 2; (2) the competitive nature of the control group (a highly ambitious group of salespeople), which may have introduced the internal validity threat of “compensatory rivalry by subjects receiving less-desirable treatments” into the study (Heppner, Kivlinghan, & Wampold, 1992); (3) possible control group concern regarding whether this study was in reality a performance tracking exercise by their organization’s management (possibly increasing control group motivation for reporting improvement in persistence abilities - abilities that are at a special premium in the salesperson role within this organization); and (4) the constant encouragement of the intervention group by the adherence efficacy intervention’s facilitators to focus throughout the intervention on three activities (i.e., “Target” and “Planning Activities”) to which intervention group participants were generally struggling to adhere before completing the GAES at time 2 (in contrast with the control group simply being asked to complete the GAES at time 2 without such constant encouragement to focus on such challenging activities in between the two GAES administrations). It may be that focusing on Target and Planning Activities during the interval between the two GAES administrations negatively influenced intervention participants’ GAES scores at time 2 (due to the fact that these activities were activities to

which intervention participants were experiencing adherence difficulties), thus making the intervention groups' improvement in GAES scores at time 2 more similar to the control groups' improvement in GAES scores at time 2.

Thus, it was determined that Hypotheses 2 through 4 may have been more valid assessments of the effectiveness of the adherence efficacy intervention currently under study. Hypotheses 2 and 3 will be discussed together first, followed by Hypothesis 4. The second hypothesis states that more favorable scores on certain of the "tips for getting the most of the intervention" will be associated with the following in intervention group participants: (a) higher levels of GAES score increases at time 2, and (b) higher increases in levels of actual participant-reported adherence to certain participant-selected desired activities (i.e., target activities) at time 2. The third hypothesis states that intervention group participants will experience increases in levels of self-reported adherence to their target activities from time 1 to time 2.

The results of analyses run to investigate Hypotheses number 2 and 3 suggest that the adherence efficacy intervention under study may indeed be effective at facilitating both of the following outcomes: (1) raising participants' adherence efficacy/"willpower" levels (i.e., strengthening participants' beliefs in their abilities to persist more effectively with activities in general) and (2) decreasing the discrepancy between the participants' self-reported ideal versus actual performance frequencies of their selected target activities (i.e., activities identified by participants as activities to which they would like to adhere more frequently), provided that participants do indeed "participate" in the adherence efficacy intervention. That is, intervention participants who reported actually performing their selected "weekly activities" (i.e., adherence-boosting strategies based on the content

of each of the intervention sessions and chosen by intervention participants from a number of options to perform during the days in between the three weekly adherence efficacy intervention sessions – e.g., a motivation-enhancing technique, or a method of managing time more efficiently) and/or reviewing their adherence efficacy intervention material in between the weekly intervention sessions were more likely to experience the following effects, respectively: (1) higher levels of “adherence efficacy” (i.e., improved GAES scores) and (2) actual increased self-reported adherence to participants’ selected target activities. In fact, results of the current study indicated that when controlling for intervention participants’ self-ratings of their own depth of review of the intervention material in between the weekly intervention sessions, every one point increase in intervention participants’ self-ratings of their level of performance of the intervention’s weekly activities was associated with a 1.22 point increase in intervention participants’ “adherence efficacy” scores (i.e., GAES scores) from time 1 to time 2.

Furthermore, results of the current study indicated that intervention participants who began the intervention with lower adherence levels in relation to their target activities and who reviewed the intervention material more often in between intervention sessions experienced greater improvements in their target activity adherence levels from Time 1 to Time 2 than those intervention participants who began the intervention with relatively small discrepancies between their self-reported actual and ideal performance of their target activities. These results may be encouraging to future intervention participants, because it may be that most people who will seek to participate in the adherence efficacy intervention will be people with relatively low target activity adherence levels.

Finally, the fourth hypothesis states that increases in GAES scores (i.e., levels of participant-reported adherence efficacy) in intervention group participants will be associated with actual increased participant-reported adherence to some of their desired activities (i.e., target activities). Results of the analysis run to investigate Hypothesis 4 found no significant association between intervention participants' increases in GAES scores from time 1 to time 2 and actual increased reported adherence to their target activities. However, the results were somewhat promising regarding a possible association between GAES score improvement and actual increased adherence levels, especially given the relatively low significance level obtained in conjunction with the low number of participants involved in the analysis. Further research in this area is needed with higher numbers of participants. This need will be discussed more thoroughly under the section entitled "Possible Group Factors Affecting Outcome of the Current Study." The focus will now turn to further discussion of the results of the analyses run to investigate Hypotheses 2 through 4.

Increasing Adherence Efficacy

As mentioned previously, actual participant-reported performance of participant-selected weekly activities (e.g., actually putting to use a motivation-enhancing technique discussed in the intervention) was influential to participants' improvement in mean General Adherence Efficacy Scale (GAES) scores from time 1 to time 2. It may be that intervention group participants who actually performed their selected weekly activities throughout the intervention experienced more "mastery experiences" (Bandura, 1977, 1982, 1995) regarding persistence with their target activities than those intervention participants who did not as frequently perform these weekly activities. If this was indeed

the case, the increase in adherence efficacy levels in those intervention participants reporting more frequent performance of their selected weekly activities is consistent with Bandura's notion that mastery experiences are the strongest method of increasing efficacy levels in individuals (Bandura, 1977, 1982, 1995).

The relationship between intervention participants' self-reported weekly activity performance and their GAES score improvement also further validates the "action orientation" of the adherence efficacy intervention currently under study. That is, one of the major underlying themes of this intervention is its emphasis on participants selecting only those weekly activities that they believe to be both effective and practically applicable within participants' current life situations. The purpose of this action orientation of the intervention is to help increase the chances that participants do indeed experience actual mastery experiences regarding persisting with their target activities rather than simply cognitively "learning about" techniques of increasing persistence with their selected target activities. Increased mastery experiences regarding persistence with intervention participants' target activities may be one of the reasons that those intervention participants who reported more frequently performed their selected weekly activities seemed to experience more increases in adherence efficacy than did those participants who reported less frequent performance of their selected weekly activities. Further research is needed to investigate whether increased adherence efficacy will generalize to activities in participants' lives that were not focused upon by the participants during the intervention (i.e., non-target activities). The issue of the generalizability of the adherence efficacy intervention's effects will be discussed in more

detail later, under the section entitled “Weaknesses of the Current Study and Suggestions for Future Research.”

Increasing Actual Reported Adherence to Desired Activities

As stated above, self-reported frequency of intervention participants’ performance of their selected weekly activities was associated with increases in their confidence regarding their adherence abilities (i.e., increased “adherence efficacy”). On the other hand, self-reported frequency of interventions participants’ reviewing of the adherence efficacy intervention material in between the weekly intervention sessions seemed to be influential to increased self-reported actual adherence to these participants’ selected target activities. It may be that reviewing the intervention material in between sessions was helpful in reminding intervention participants of their weekly adherence goals throughout the course of the intervention. This reviewing of the previous week’s material could have made the intervention participants’ adherence goals more consistently accessible to them on a more regular basis throughout the course of the intervention. If this explanation is a valid one, it would serve to further substantiate the intervention’s focus on accessibility’s crucial role to adherence (i.e., that more accessible material is more likely to positively affect one’s adherence levels and to decrease the forgetting of adherence goals regarding desirable activities).

These results are encouraging for many reasons. One reason has to do with the empirical support provided by this study regarding the possible effectiveness of the adherence efficacy intervention under study. The results discussed above suggest that this intervention may assist people in both: (1) improving their overall efficacy beliefs regarding their abilities to adhere to more desired activities and (2) increasing their actual

adherence to certain selected desired activities in participants' lives. The possible ramifications of these findings for health professionals and their clients, along with other populations, are manifold, and will be discussed later.

Linking Adherence Efficacy with Actual Reported Adherence to Desired Activities

Although the current study did not find a significant link between improved intervention participant GAES scores and actual improved self-reported adherence to their target activities, the results obtained in this study may be interpreted as somewhat encouraging regarding a possible association between these two variables (as well as regarding further evidence of the validity of the GAES). Although the number of participants in the current study was relatively small, the results of the analysis run to investigate Hypothesis 4 seem to be encouraging regarding a possible relationship between improvement in intervention participants' GAES scores and improvement in their self-reported discrepancy scores between self-reported actual versus ideal frequency of performance of their target activities. Although this association was not significant at the .05 level in the current study, the results did approach significance in predicted directions (i.e., improvement in intervention participants' GAES scores being associated with decreases in their discrepancy scores between self-reported actual versus ideal frequency of performance of their target activities), even with the small number of people able to be included in the analysis ($n = 11$). This result may certainly be interpreted as encouraging, especially when combined with the other validity and reliability statistics previously gathered on the GAES (Higley & Tucker, 2000). However, as stated above, further study is needed with larger numbers of participants to better investigate the

possible association between changes in participants' GAES scores and changes in their self-reported actual adherence to their target activities.

Possible Group Factors Affecting Outcome of the Current Study

The significant results of the current study are especially encouraging due to two factors in particular: (1) the seemingly relatively low motivation of the intervention group compared to other adherence efficacy groups previously facilitated by the investigator, and (2) the relatively small number of intervention participants involved in the current study. These two factors will now be briefly discussed.

Motivation of the intervention group. The results of the current study may be regarded as especially noteworthy due to the atypical nature of the intervention participants' involvement in the adherence efficacy intervention. Specifically, these participants deviated from typical participants in the adherence efficacy intervention in that none of the participants in the intervention under study in the current investigation performed either of the following activities: (1) actively sought out participation in the intervention, and/or (2) paid for their participation in the intervention. These factors may have contributed to about half of the participants in the intervention seeming to show low interest in and low motivation for participation in the intervention. For example, the intervention participants ate lunch during the beginning of the intervention sessions, and about half of the intervention participants seemed to be often more interested in eating and/or socializing than in participating in the intervention. This relatively low participant motivation for the intervention was not surprising to the primary investigator, as many intervention participants seemed to be involved in the intervention simply because of curiosity or due to the desire to be helpful to the project rather than truly desiring to work

on their adherence efficacy and/or increasing their persistence with actual desired activities in their lives. This low participant motivation may have caused participants to fail to improve their adherence efficacy at the same levels of more typical intervention participants.

The atmosphere in the intervention group focused upon in the current study seemed to the primary investigator to be in stark contrast to many other adherence efficacy interventions facilitated by the investigator that are usually filled with much more focused, motivated, and active participants. As mentioned above, these differences in participants' approach to the intervention may have been due in part to other adherence efficacy interventions being filled almost exclusively with participants desiring to learn about methods of increasing their persistence abilities, with most participants seeking out participation in the intervention and paying to experience the intervention. However, even these barriers to optimal participant involvement did not seem to halt all positive results experienced by many participants (i.e., the participants that more consistently reviewed the intervention material and performed their weekly activities) in this seemingly less motivated and less focused intervention group. These positive results in a seemingly sub-optimally motivated group make it likely that even stronger positive effects may be possible in more optimally motivated groups experiencing the intervention. More research with such groups is needed to investigate this possibility.

Small number of intervention participants involved in the study. The results of the current study are also very encouraging given the small number of participants involved in the study. Since utilizing the control group as it was designed in the current study was deemed perhaps a less than valid way of assessing the adherence efficacy

intervention's effectiveness (due to the seemingly unequal nature of the two groups, as discussed above), the 12 participants in the intervention group who completed the study were the only participants left to utilize in the data analysis. Low participant number is a major threat to statistical power (Heppner, Kivlighan, & Wampold, 1992). However, even with the relatively low number of participants involved in the data analysis, the positive effects discussed above still emerged from some of the data analyses, suggesting a possibly powerful positive intervention effect on certain intervention participants' adherence efficacy levels and certain participants' actual reported adherence to their target activities (i.e., participants who more consistently review the intervention material in between sessions and who perform their selected weekly activities). Further study on larger intervention groups is necessary to investigate this matter further.

Possible Ramifications of The Current Study and The Adherence Efficacy Intervention

An intervention which can help increase adherence to a variety of different activities may be beneficial to professionals in many fields (e.g., medicine, psychotherapy, personal training, education), along with many other populations. The adherence efficacy intervention under study may benefit many individuals, including those who are attempting to increase persistence in the areas of health and well-being, goal achievement, and/or positive interpersonal relationships. The discussion will now turn to some of the possible uses of the adherence efficacy intervention currently under study.

Health and well-being. Although it seems that most people are aware of the benefits of at least a few health-promoting routines (e.g., exercise, healthy eating habits, regular meditation), there is much evidence that adherence to such health-promoting

and/or health-restoring activities is often low. For example, some studies suggest that only about twenty percent of North Americans participate in sufficient regular physical activity to maintain cardiovascular health (Wankel, 1993). Furthermore, it has been suggested that about 50 percent of those who are able to begin an exercise routine will drop out within six to eight weeks (Gavin, 1988). Meanwhile, Sclar (1991) reports that adherence levels to medical regimens for chronic disease patients are often below fifty percent. Ironically, it has been reported that those most in need of being adherent to health-promoting routines are often the least likely to actually be adherent to such regimens (Gavin, 1988).

Improving adherence to certain health-promoting routines is of such immense concern to health professionals because the ability to adhere to certain activities can contribute significantly to individuals' quality and length of life (e.g., Davis, Claridge, & Brewer, 1996; Dubbert, 1992; Kabat-Zinn, 1990; Myers, 2000; Sclar, 1991; Thayer, Newman, & McClain, 1994; Tinsley & Tinsley, 1981; Wankel, 1993). For example, adherence to certain health-promoting regimens may contribute to such physical benefits as reduced risks of hypertension, adult-onset diabetes, osteoporosis (*International Journal of Sport Psychology*, 1992), and various types of cancers (Dubbert, 1992). Furthermore, the numerous psychological effects of adherence to certain health-oriented routines include reduced state anxiety and neuroticism, along with increased positive body image (Davis, Claridge, & Brewer, 1996), more positive mood states (Thayer, Newman, & McClain, 1994), and less subjective pain reports by chronic pain patients (Kabat-Zinn, 1990). Since most health-promoting activities cannot effectively help to bring about higher levels of health and well-being in individuals unless they are adhered to over a

significant period of time, this adherence efficacy intervention may be a helpful supplementary training tool for individuals attempting to positively impact their health and well-being through increasing adherence to health-promoting activities (and for those who are attempting to facilitate this adherence in their patients or clients).

In some instances the ability to comply with a medically prescribed routine is the difference between life and death, rather than simply a method of strengthening one's health and well-being (e.g., Scler, 1991). For example, adherence to certain dietary restrictions and medication regimens is often critical to maintaining the life of renal transplant patients (Tucker, Petersen, Herman, Fennell, Bowling, Pederson, & Vosmik, 2001). Additionally, the diabetic must also often adhere to a strict diet and medication regimen or face possible death. It may be that the adherence efficacy intervention currently under study could help promote increased persistence with such a variety of critical "life or death" behavioral regimens. For example, the intervention may assist those who are beginning to deal with required lifestyle changes (e.g., the heart attack victim who must stop eating fatty foods, the diabetic who must adhere to a new nutrition regimen) with feeling more empowered as they begin a new way of life.

Furthermore, patients must often learn to adhere to a variety of new activities in order to prolong their lives, rather than simply adhering to one new activity (e.g., the heart patient who must learn to adhere to new nutrition, exercise, and medication regimens). Increased levels of adherence efficacy may be particularly important in such "multi-regimen" cases. It may be that the adherence efficacy intervention under study can assist individuals in persisting with exercise routines, nutrition plans, pill-taking regimens, and other health-related regimens through increasing their general adherence

efficacy. The adherence efficacy intervention currently under study may be utilized to assist health care providers in more effectively training their patients to structure their lives for a higher percentage chance of more success in persisting with their prescribed or recommended health care regimens (e.g., how to keep more highly motivated for participation in the regimens, methods of acquiring effective social support for persistence with the regimens, how to increase enjoyment of the regimens). Thus, it may be that the adherence efficacy intervention currently under study can increase individuals' confidence and competence in their abilities to persist with a myriad of positive health-related activities. Studies investigating the effects of this adherence efficacy intervention on such populations are necessary to examine its effects on individuals facing such multiple challenges.

Goal achievement. There are many people who investigate the characteristics of highly successful and effective people across many different fields (e.g., Covey, 1989; Loehr & Schwartz, 2003; Tice & Quick, 1997). There are a multitude of factors associated with achievement put forth by these and other investigators, such as the ability to properly reward oneself and others for achievement, the habit of writing one's goals down, and the utilization of consistent visualization of goal attainment. One factor that is consistently promoted by those who train others in high-level goal achievement and/or have experienced the accomplishment of many of their own goals is the asset of persistence in the face of obstacles to achievement (e.g., limited time and resources, multiple experiences of failure) and the often negative influence of pessimistic people. Thus, it may be that the adherence efficacy intervention under study may be an effective supplement to many goal-achievement programs. Perhaps increasing one's adherence

efficacy can also increase one's ability to: (1) overcome more obstacles to achievement, (2) effectively implement success-oriented habits into one's life, and (3) eventually accomplish more of one's desired goals in life.

Self-esteem and positive relationships. Persistence with certain activities can also influence one's self-esteem and relationships with others. As mentioned above, the psychological effects of adherence to certain routines (like yoga, meditation, and certain types of exercise) can reduce one's state anxiety and neuroticism, as well as increase one's positive body image (Davis, Claridge, & Brewer, 1996) and promote more positive mood states (Thayer, Newman, & McClain, 1994). All of these factors can certainly positively impact one's self-esteem, making it easier to maintain a healthy and uplifting relationship with oneself. Furthermore, there are certain activities, which, if persisted with, can increase the probability of a satisfying relationship with another person (e.g., Korb, Gorrell & Van De Riet, 1989; Perls, Hefferline & Goodman, 1951; Zinker, 1977). Examples of such activities are active listening, treating others with deep respect, and consistently providing encouraging and realistic feedback to others rather than providing belittling or demeaning feedback. It may be that the adherence efficacy intervention currently under study could assist those who are attempting to persist with self-esteem-enhancing activities and/or those who are attempting to utilize certain interpersonal relationship-enhancing activities on a more consistent basis by helping to make these relationship-enhancing activities into habits.

Weaknesses of the Current Study and Suggestions for Future Research

There are some weaknesses in the current study that ought to be addressed in future research in the area of adherence efficacy, while other weaknesses of this study

seem more complicated, and may not be able to be so easily addressed in the future. Some of these weaknesses have to do with the following areas: (1) inequality between control and intervention groups; (2) limited diversity of intervention group participants' selected target activities; (3) limited participant ethnic diversity; (4) the effects of age, education level, sex, and socio-economic status of intervention participants on the adherence efficacy intervention's effectiveness; (5) lack of random selection and random assignment of participants; (6) lack of intervention participant follow-up data (7) the issue of significance versus importance; (8) the question of generalizability of adherence efficacy to desired activities other than participants' target activities; and (9) the relatively small participant sample size in the study. These weaknesses of the current investigation, along with suggestions for future research (or why future research may not be able to address certain of the current study's weaknesses) will now be discussed.

Inequality between control and intervention groups. The first weakness of the current study to be discussed here is the inequality of the control group versus the intervention group. It seems that the study could have been more effective had the control group encountered a more similar experience to that of the intervention group during the course of the intervention. Specifically, the intervention and control groups may have been more equal in terms of assessing changes in adherence efficacy levels over time if the control group was also encouraged to track their adherence to a target activity to which they were desiring increased adherence for the same amount of time that the intervention group was asked to do so. This may have encouraged control group adherence efficacy ratings that were more grounded in experiential reality in the sense that these ratings would theoretically be more influenced by control group participants'

lived experience regarding increasing adherence to these challenging (in terms of persistence) activities. Furthermore, the members of the control group were economically more well off and held higher-level jobs at the fitness center than the intervention group participants, and were older and more highly educated than the control group participants. A future study with more equality in these areas between the control and intervention groups is recommended.

Limited diversity of intervention group participants' selected target activities.

Another obvious shortcoming of the current study is the lack of diversity of the participant-selected target activities. A scan of the list of these target activities shows that 10 out of 13 (77%) activities were physical health-promoting activities (i.e., workout, eat healthy, exercise, running). This lack of target activity diversity makes one wonder what the results of the study would be with a more wide-ranging assortment of participant-selected activities (e.g., cleaning the garage, taking the kids to the park, reading more often, etc.).

Limited participant ethnic diversity. Another shortcoming of the current investigation has to do with the ethnic make-up of its participants. Although the gender make-up was about equal in the intervention group (certainly a strength of the current study), 11 out of 13 intervention group participants identified as “White/Caucasian American” (with one intervention participant identifying himself as “African American” and one identifying herself as “Asian American”). Furthermore, all 14 control group participants identified themselves as “White/Caucasian American.” Additionally, it seemed to the primary investigator that even the minority participants in the study may have been quite acculturated to the dominant White/Caucasian American culture. Future

investigations should focus on the effectiveness of the adherence efficacy intervention on more ethnically diverse participants and with minority participants who are at different levels of acculturation.

Age, education level, sex, and SES of intervention participants. Future research focusing on this adherence efficacy intervention should investigate whether age, education level, and/or socioeconomic status have any effect on the impact of the adherence efficacy intervention under study. It was not possible to investigate this matter empirically during the current investigation due to the small number of participants involved. However, a review of individuals' scores revealed possible evidence of certain groups benefiting more from the intervention than other groups. For example, it seemed that intervention group participants from 18-25 years old and participants from 31-40 years old experienced higher increases in GAES scores from time 1 to time 2 than did intervention group participants from 26-30 years of age. However, all three of these age groups reported increased persistence with their target activities. Furthermore, the male intervention group participants seemed to experience higher increases in self-reported actual persistence with their target activities from time 1 to time 2 than did the female intervention group participants. However, participants of both sexes seemed to experience similar increases in GAES scores during the same time interval. Further studies should investigate the following: (1) whether these differences in intervention effects on different types of people truly do exist; (2) explanations for any different effects that may exist; and (3) methods of possibly modifying the adherence efficacy intervention in order to make it as positively impactful as possible for as many different types of people as possible.

Lack of random selection and random assignment of participants. Another weakness of the current investigation has to do with its lack of both random selection of participants for the study and random assignment of these participants to the control and intervention groups. The lack of random selection theoretically threatens the study's external validity, while the lack of random assignment of participants is a threat to its internal validity (Heppner, Kivlighan, & Wampold, 1992). However, it may be that randomly selecting and assigning participants to the adherence efficacy intervention may not be the most valid way of assessing the effectiveness of the intervention. That is, most past participants in the intervention have been voluntary participants who have sought out the intervention and paid for their participation in it. It seems that this method will be the most common manner through which most future intervention participants will come to take part in the intervention. Thus, the most natural way of studying the intervention may be to investigate its effects on voluntary, paying participants (with future paying participants possibly serving as wait-list control groups). This method of participant recruitment (i.e., participants self-selecting for participation in the intervention) may also alleviate some of the apparent motivational problems experienced by some of the intervention group participants mentioned above.

Lack of intervention participant follow-up data. Another weakness of the current investigation has to do with its lack of intervention participant follow-up data. Although it was attempted to follow up with participants three weeks after the end of the intervention, too few follow-up questionnaires were filled out to have a meaningful analysis of the data. Furthermore, since most new activities tend to be given up on within 4-6 months of beginning them, a 6-month follow-up on the participants' adherence to

their selected target activities would be ideal in order to check in on the permanence of the effects of the adherence efficacy intervention.

Significance versus importance. Another area to investigate in future studies has to do with the issue of significance versus importance. As mentioned previously, certain intervention group participants (i.e., those reporting higher levels of performance of their selected weekly activities) did seem to experience a significant increase in their adherence efficacy levels [as measured by the General Adherence Efficacy Scale (GAES)]. However, the amount of increase in GAES scores that is truly important to increasing individuals' adherence abilities needs to be studied further. In order to investigate this matter, importance in the area of increased GAES scores must first be defined. One way to define an important increase in GAES scores may be the extent to which the increase in question (e.g., a one point increase in GAES scores) is associated with actual reported increased adherence to certain desired activities in individuals' lives (e.g., exercising one more time per month). Although increases in GAES scores were not significantly related to increased persistence with participants' selected target activities in the current investigation, more research in this area is needed for the following two major reasons: (1) the low number of participants in the analysis combined with a correlation that may be defined as "approaching" significance and (2) our lack of knowledge regarding whether adherence to other (non-targeted) desired activities in the intervention participants' lives were positively affected by the adherence efficacy intervention. These issues, along with an investigation into other possible ways of defining "important" change in adherence efficacy levels (e.g., increased optimism in general regarding adherence abilities), should be the focus of future research.

Generalization of adherence efficacy intervention effects. As mentioned above, whether the positive results of the adherence efficacy intervention generalize to other activities in participants' lives (i.e., non-target activities) should be a focus of future studies regarding this area of research. A major goal of this intervention is to increase general adherence confidence and competence in its participants. Future studies should investigate whether participants in the intervention do indeed experience increased persistence with multiple desired activities after completing the intervention and its follow-ups.

The relatively small participant sample size in the study. Finally, as mentioned previously, an obvious weakness of the current study has to do with its relatively small sample size. Especially due to the possible inequality between the control and intervention groups discussed above, the number of participants in this study is quite small. Along with the suggestions mentioned above regarding the need to test this intervention's effects on more diverse individuals (including diversity related to ethnic background, age, sex, education level, and socioeconomic status), future research focusing on the efficacy of the intervention under study should seek to measure the intervention's effects on larger groups of people.

Conclusion

The present research was begun with the idea that its results may lend support to Bandura's (1982, 1995) notion that it is not some inherent and ambiguous "willpower" that determines whether some people will be able to adhere to desired regimens (e.g., exercise, healthy diets, effective work schedules) and dooms others to live relatively nonadherent lives (and to experience the frequently negative results of such

nonadherence, such as heart trouble, low self-esteem, and/or weight problems). Rather, it is individuals' learned confidences in their abilities to exact a good deal of control over their own actions on a consistent basis (i.e., individuals' "adherence efficacy") that increases individuals' probabilities of adhering to many of their desired activities in life (and of reaping the benefits so often associated with such adherence).

Individuals who think of themselves as highly "adherence efficacious" people may be more resistant to obstacles to their adherence (e.g., motivation problems or time issues), regardless of what activities or thought patterns they are attempting to persist with consistently. Thus, higher levels of adherence efficacy may assist those who are concerned with their physical, mental, social, and professional health to feel more in control of factors that influence these four crucial aspects of their lives (e.g., activities related to more positive health, more satisfying leisure experiences, increased financial health, and more satisfying interpersonal relationships). Improving individuals' self-efficacy as to their ability to adhere to nearly any activity that they desire to perform consistently could also contribute to the empowerment of those who currently believe that they do not have the "willpower" to adhere to many of their desired activities in life and/or to behaviors associated with increased life satisfaction.

Thus, if future research corroborates some of the positive results of the current study, the adherence efficacy intervention may prove to be useful to many individuals across many fields. For example, mental health professionals and physicians working with those recovering from wounds of the body or mind may wish to train their patients in structuring their lives for increased probabilities of adherence to recovery regimens. This adherence efficacy intervention may also be useful for those who are seeking to

improve their physical and mental health without the need for “recovery,” but instead desiring to persist with activities that may help them to move toward further “optimizing” of their lives (e.g., clearer communication with others, more frequent participation in relaxation exercises). Finally, the intervention currently under study may also be helpful to business employees and managers seeking to increase adherence to company policies in either themselves or in others. For example, managers may wish to utilize the intervention to help increase persistence with their companies’ mission statements and/or business objectives, and to assist their employees with some of their personal goals as well.

In conclusion, further study of the adherence efficacy intervention is certainly necessary. However, the results of the current study are certainly encouraging regarding the effectiveness of this intervention. The next step in this line of research seems to be the testing of this adherence efficacy intervention on larger groups of more diverse individuals.

APPENDIX A
GENERAL ADHERENCE EFFICACY SCALE (GAES)

Instructions:

Please rate each of the following items on the on a 5-point scale from 1 (Strongly Disagree) to 5 (Strongly Agree). Please answer in terms of your adherence to activities in general. **Adherence** means “stick-with-itness”. Thus if you “adhere” to an activity, you do it as regularly as you would like to (you “stick with” the activity).

	Strongly Disagree 1	Slightly Disagree 2	Sometimes Disagree/ Sometimes Agree 3	Slightly Agree 4	Strongly Agree 5
1. When I make plans to adhere to an activity, I am certain that I can do so for as long as I would like.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. One of my problems is that I cannot adhere to activities to which I should adhere.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. If I can't adhere to an activity at first, I keep trying until I can.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. When I set a goal to adhere to an activity, I rarely achieve that goal.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. I give up on adhering to activities before I would like to.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I often avoid facing difficulties involved with adhering to activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. If adhering to an activity appears to be too complicated, I will not even try to adhere to it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. If I want to, I can adhere to unpleasant activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. When I decide to adhere to an activity, I go right to adhering to it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. I soon give up if I am not initially successful in adhering to a new activity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly Disagree 1	Slightly Disagree 2	Sometimes Disagree/ Sometimes Agree 3	Slightly Agree 4	Strongly Agree 5
11. When unexpected problems occur that make it difficult to continue adhering to an activity, I don't handle them well.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. I avoid trying to adhere to new things when adherence seems too difficult for me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. Failure to adhere to an activity just makes me try harder to adhere to that activity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. I feel insecure about my ability to adhere to activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. I have the ability to adhere to whatever activities to which I would like to adhere.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. I give up on adhering to activities easily.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. I do not seem capable of dealing with most adherence-related problems that come up in life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

APPENDIX B
DEMOGRAPHIC DATA QUESTIONNAIRE

Instructions: Please answer each item as honestly as possible by completely filling in the circle to the left of the most accurate answer.

1) Your Gender:

- | | |
|------------------------------|----------------------------|
| <input type="radio"/> Female | <input type="radio"/> Male |
|------------------------------|----------------------------|

2) Your Marital Status

- | | |
|--------------------------------|---|
| <input type="radio"/> Married | <input type="radio"/> Widowed |
| <input type="radio"/> Single | <input type="radio"/> Other (please specify _____) |
| <input type="radio"/> Divorced | |

3) Your Race/Ethnicity

- | | |
|--|---|
| <input type="radio"/> Black/African American | <input type="radio"/> White/Caucasian American |
| <input type="radio"/> Latino/Hispanic American | <input type="radio"/> Other (please specify _____) |
| <input type="radio"/> Asian American | |

4) Highest Level of Education You Have Completed

- | | |
|---|---|
| <input type="radio"/> Elementary School | <input type="radio"/> College or Technical School |
| <input type="radio"/> Middle/Junior High School | <input type="radio"/> Graduate/Medical School |
| <input type="radio"/> High School | |

5) Your Annual Household Income (Check One)

- | | |
|--|---|
| <input type="radio"/> Below \$10,000 | <input type="radio"/> \$100,001 - \$150,000 |
| <input type="radio"/> \$10,001 - \$20,000 | <input type="radio"/> \$150,001 - \$200,000 |
| <input type="radio"/> \$20,001 - \$35,000 | <input type="radio"/> \$200,001 - \$300,000 |
| <input type="radio"/> \$35,001 - \$50,000 | <input type="radio"/> \$300,001 - \$400,000 |
| <input type="radio"/> \$50,001 - \$75,000 | <input type="radio"/> \$400,001 - \$500,000 |
| <input type="radio"/> \$75,001 - \$100,000 | <input type="radio"/> \$500,001 - Above |

6) Your Age in Years

- | | | |
|-----------------------------|-----------------------------|------------------------------------|
| <input type="radio"/> 18-25 | <input type="radio"/> 46-50 | <input type="radio"/> 71-75 |
| <input type="radio"/> 26-30 | <input type="radio"/> 51-55 | <input type="radio"/> 76-80 |
| <input type="radio"/> 31-35 | <input type="radio"/> 56-60 | <input type="radio"/> 81-85 |
| <input type="radio"/> 36-40 | <input type="radio"/> 61-65 | <input type="radio"/> 85 and above |
| <input type="radio"/> 41-45 | <input type="radio"/> 66-70 | |

APPENDIX C AETP ASSESSMENTS

WEEK ONE: MOTIVATION PRETEST

Your Code: _____

Your Target Activity: _____

On average, how many times per week
do you currently perform your Target
Activity? _____ **times per week**

On average, how many times per week
would you like to perform your Target
Activity?: _____ **times per week**

Please fill in the circle next to the most accurate answer to each item. Please be as honest as possible, and fill in the circle representing your answer COMPLETELY.

	Strongly Disagree 1	Slightly Disagree 2	Sometimes Disagree/ Sometimes Agree 3	Slightly Agree 4	Strongly Agree 5
1. I am good at motivating myself for all kinds of activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I am good at motivating myself for my Target Activity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. In the last week, I adhered to my Target Activity as much as I wanted to.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I am willing to try new methods of increasing my willpower.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

WEEK TWO: MOTIVATION POSTTEST

Your Code: _____

Your Target Activity: _____How many times did you perform your
Target Activity last week?On average, how many times per week would
you like to perform your Target Activity?:

_____ times per week

_____ times per week

Please fill in the circle next to the most accurate answer to each item. Please be as honest as possible, and fill in the circle representing your answer COMPLETELY.

	Strongly Disagree 1	Slightly Disagree 2	Sometimes Disagree/ Sometimes Agree 3	Slightly Agree 4	Strongly Agree 5
1. I am good at motivating myself for all kinds of activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I am good at motivating myself for my Target Activity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. In the last week, I adhered to my Target Activity as much as I wanted to.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I discussed my motivation method(s) with another person this past week in an in-depth manner.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. The person referred to in item #4 above was very supportive of my motivation methods	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I have reviewed the motivational material that we discussed last week at least once.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I thoroughly performed my motivational Weekly Activity last week.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

WEEK TWO: TIME PERCEPTION, ACCESSIBILITY, AND ENJOYMENT PRETESTS

Your Code: _____

Please fill in the circle next to the most accurate answer to each item. Please be as honest as possible, and fill in the circle representing your answer COMPLETELY.

TIME PERCEPTION PRETEST

	Strongly Disagree 1	Slightly Disagree 2	Sometimes Disagree/ Sometimes Agree 3	Slightly Agree 4	Strongly Agree 5
1. I am good at making time for all kinds of activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I am good at making time for my Target Activity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

ACCESSIBILITY PRETEST

	Strongly Disagree 1	Slightly Disagree 2	Sometimes Disagree/ Sometimes Agree 3	Slightly Agree 4	Strongly Agree 5
1. I am good at making sure that I have easy access to the materials necessary for most of the activities that I like to adhere to.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I am good at making sure that I have easy access to the materials necessary for my Target Activity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

ENJOYMENT PRETEST

	Strongly Disagree 1	Slightly Disagree 2	Sometimes Disagree/ Sometimes Agree 3	Slightly Agree 4	Strongly Agree 5
1. I am good at increasing enjoyment for all kinds of activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I am good at increasing enjoyment for my Target Activity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

WEEK THREE: TIME PERCEPTION, ACCESSIBILITY, ENJOYMENT POSTEST/SOCIAL SUPPORT PRETEST

Your Code: _____

Your Target Activity: _____

How many times did you perform your Target Activity last week?

On average, how many times per week would you like to perform your Target Activity?:

_____ times per week

_____ times per week

TIME PERCEPTION POSTTEST

Please fill in the circle next to the most accurate answer to each item. Please be as honest as possible, and fill in the circle representing your answer COMPLETELY.

	Strongly Disagree 1	Slightly Disagree 2	Sometimes Disagree/ Sometimes Agree 3	Slightly Agree 4	Strongly Agree 5
1. I am good at making time for all kinds of activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I am good at making time for my Target Activity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. In the last week, I adhered to my Target Activity as much as I wanted to.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I discussed my time perception method(s) with another person this past week in an in- depth manner.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. The person referred to in item #4 above was very supportive of my time perception methods	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I have reviewed the time perception material that we discussed last week at least once.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I thoroughly performed my time perception Weekly Activity last week.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

ACCESSIBILITY POSTTEST

Please fill in the circle above the most accurate answer to each item. Please be as honest as possible, and fill in the circle representing your answer COMPLETELY.

	Strongly Disagree 1	Slightly Disagree 2	Sometimes Disagree/ Sometimes Agree 3	Slightly Agree 4	Strongly Agree 5
1. I am good at making materials as accessible as possible for all kinds of activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I am good at making materials as accessible as possible for my Target Activity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I discussed my accessibility method(s) with another person this past week in an in- depth manner.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. The person referred to in item #3 above was very supportive of my accessibility methods	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. I have reviewed the accessibility material that we discussed last week at least once.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I thoroughly performed my accessibility Weekly Activity last week.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

ENJOYMENT POSTTEST

Please fill in the circle above the most accurate answer to each item. Please be as honest as possible, and fill in the circle representing your answer COMPLETELY.

	Strongly Disagree 1	Slightly Disagree 2	Sometimes Disagree/ Sometimes Agree 3	Slightly Agree 4	Strongly Agree 5
1. I am good at increasing my enjoyment of all kinds of activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I am good at increasing my enjoyment of my Target Activity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly Disagree 1	Slightly Disagree 2	Sometimes Disagree/ Sometimes Agree 3	Slightly Agree 4	Strongly Agree 5
3. I discussed my enjoyment method(s) with another person this past week in an in- depth manner.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. The person referred to in item #3 above was very supportive of my enjoyment methods	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. I have reviewed the enjoyment material that we discussed last week at least once.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I thoroughly performed my enjoyment Weekly Activity last week.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

SOCIAL SUPPORT PRETEST

Please fill in the circle above the most accurate answer to each item. Please be as honest as possible, and fill in the circle representing your answer COMPLETELY.

	Strongly Disagree 1	Slightly Disagree 2	Sometimes Disagree/ Sometimes Agree 3	Slightly Agree 4	Strongly Agree 5
1. I am good at recruiting effective social support for all kinds of activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I am good at recruiting effective social support for my Target Activity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Which of the training program sessions were you NOT able to attend?

- ☐ Session #1 – Introduction & Motivation
- ☐ Session #2 – Time Perception, Accessibility, & Enjoyment
- ☐ Session #3 – Social Support & Wrap-up
- ☐ I did not miss any session

WEEK FOUR: SOCIAL SUPPORT POSTTEST

Your Code: _____

Your Target Activity: _____

How many times did you perform your
Target Activity last week?

_____ times per week

On average, how many times per week would
you like to perform your Target Activity?:

_____ times per week

Please fill in the circle above the most accurate answer to each item. Please be as honest as possible, and fill in the circle representing your answer COMPLETELY.

	Strongly Disagree 1	Slightly Disagree 2	Sometimes Disagree/ Sometimes Agree 3	Slightly Agree 4	Strongly Agree 5
1. I am good at recruiting effective social support for all kinds of activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I am good at recruiting effective social support for my Target Activity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. In the last week, I adhered to my Target Activity as much as I wanted to.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I discussed my social support recruitment method(s) with another person this past week in an in-depth manner.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. The person referred to in item #4 above was very supportive of my social support recruitment methods.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I have reviewed the social support material that we discussed last week at least once.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I thoroughly performed my social support Weekly Activity last week.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

APPENDIX D
INTERVENTION EVALUATIONS
Adherence Efficacy Training Program (AETP)

1. We would greatly appreciate your evaluation of this training program. Please evaluate each statement by rating each one from 1 (“**Strongly Disagree**”) to 5 (“**Strongly Agree**”).
-

- 1) I found the training program to be informative.

Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree
	1	2	3	4	5	

- 2) I found the training program to be well-organized.

Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree
	1	2	3	4	5	

- 3) The training program gave me helpful suggestions regarding how to increase my ability to adhere to (or “stick with”) more activities.

Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree
	1	2	3	4	5	

- 4) The training program material was presented in a way that was easy to understand.

Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree
	1	2	3	4	5	

- 5) After experiencing the training program, I feel more confident in my ability to stick with more activities in my life.

Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree
	1	2	3	4	5	

- II. Now, please evaluate the following statement from 1 (“**Poor**”) to 5 (“**Excellent**”).
-

- 6) Overall, how do you rate the training program?

Poor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Excellent
	1	2	3	4	5	

Adherence Efficacy Training Program (AETP) Evaluation

1. What did you enjoy the most about the Adherence Efficacy Training Program?

2. What portion of the Adherence Efficacy Training Program helped you the most toward adhering to your Target Activity?

3. What do you think could be improved about the Adherence Efficacy Training Program?



APPENDIX E AETP TIPS "CHECK-UPS"

WEEK TWO: AETP MIDPOINT TIPS "CHECK-IN"

Your Code: _____

Instructions: Please fill in the circle above the most accurate answer to each item. Please be as honest as possible, and fill in the circle representing your answer COMPLETELY.

	Strongly Disagree 1	Slightly Disagree 2	Sometimes Disagree/ Sometimes Agree 3	Slightly Agree 4	Strongly Agree 5
1. I have thoroughly read the Suggested Readings given in the training program so far.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I will make the techniques discussed during this training program a regular part of my life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I have thought a lot about how to apply the program techniques to all areas of my life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I have often recognized when others were using the techniques discussed in the training program and/or when they could benefit from using the techniques.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. With some practice, I can use the techniques discussed so far in this training program to help tap into my immense ability to "stick with" most anything that I would like to.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I take all setbacks in applying the training program techniques as temporary obstacles.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I have been able to recognize any "resistance" that I have to tapping into my willpower potential (for example, believing that these techniques cannot work for me or that I don't have ability to improve my willpower).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly Disagree 1	Slightly Disagree 2	Sometimes Disagree/ Sometimes Agree 3	Slightly Agree 4	Strongly Agree 5
8. I am open and willing to trying out methods of dealing with any resistance referred to in item #7 above.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. I <u>gently</u> encourage myself to improve in the areas that we are covering in this training program.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. I am celebrating or recognizing myself for <u>even the small improvements</u> in my ability to stick with my Target Activity.”	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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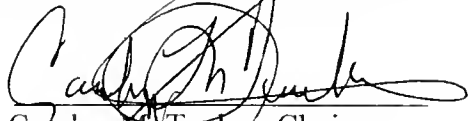
BIOGRAPHICAL SKETCH

Brian P. Higley was born on November 26, 1973, in Gainesville, Florida, to Carol and David Higley. Brian moved to Ohio in 1977, where he completed high school in Stow, Ohio, in 1992. He then entered Baldwin-Wallace College in Berea, Ohio. There he majored in psychology and was awarded the 1995 Dr. William Prokasy Award, recognizing excellence in academic achievement, contributions to the psychology department, and potential in the field of psychology. Brian was also a four-year letter winner on his college's basketball team, and was voted team captain and All-Ohio Athletic Conference Tournament Team in 1996. Brian graduated college summa cum laude in the Fall of 1997. He then was employed at the Cleveland Clinic until entering the doctoral program in counseling psychology at the University of Florida in 1998.

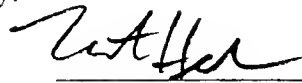
Brian received his master's degree in 1999 and was the 2001 Ted Landsman Award Recipient, in recognition of excellence in the study and promotion of human growth and development. He then took approximately two years off from his doctoral program in order to concentrate fully on developing and facilitating various psychoeducational interventions focusing on increasing success and life satisfaction across the eastern United States, as well as watching his niece, Riley, grow during her first six months of life. Brian hopes to complete his Ph.D. in the summer of 2004.

In his spare time, Brian enjoys reading, watching sports, playing basketball, and being with friends and family. He is an avid weight trainer, jogger, and yoga/meditation enthusiast, and is addicted to the television show "Buffy the Vampire Slayer."


I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.


Carolyn M. Tucker, Chair
Professor of Psychology

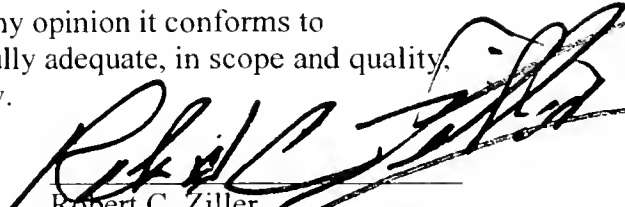
I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.


Martin Heesacker
Professor of Psychology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.


Heather A. Hausenblas
Assistant Professor of Exercise
and Sport Sciences

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.


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